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SUPERSTITIONS AMONG AMERICAN GIRLS

By IVA LOWTHER PETERS, A. M.

To establish a connection between what uncultured ancient men thought and did, and what modern men think and do, raises the issue as to how far modern conduct is based on modern knowledge, and how far on knowledge and precepts available in earlier and ruder stages of development. That the difficulty of uprooting old beliefs is so great that they are usually incorporated or adapted by advancing culture is well attested by history. There is a persistence in human thought that is surprising. Many revolutionary movements have taken place, but we have never been able to rid ourselves of our past. This seems to have been particularly true of woman. At the time she tended the hearth fire, she kept the lore and tradition of the elder generation.

The papers given here include the results of four years' study of various mental inhibitions or obsessions prevalent among twenty-two groups of girls taught by the author. These groups comprised 350 individuals between seventeen and twenty-one years of age. Some of the papers include (A) the superstitions prevalent in the girl's own family, and the superstitions of the group she knows best. One study (B) was made by a girl from observations of her own class. The last group of papers (C) called "My Superstitions," includes only those which the girls said they felt so strongly that their conduct was affected by them. The girls who wrote the papers come from good American families. The superstitions collected are as follows:

A. Superstitions Prevalent in the Girl's Own Family

Girl 1—"Superstitions I learned from my family."

A new born baby must be carried upstairs before it is carried downstairs.

A dream about your mother means trouble; about your father, joy; about cattle, money.

When a cat wakes up and washes its face, the person it looks at will be the first in that house to die.

A tick in the wall means a death in the family.

If you see a white horse the first thing in the morning you will get a letter.

If you see a crescent moon through a glass you will go on a journey before the moon wanes.

To sit on the table means a quarrel.

Water spilled in the house means that some one will come in drunk.

If you tear your own dress you lose a friend.

If a hound bays outside your window there will be a death in the family.

If a black cat crosses your path, go home. Disappointment awaits you.

A cross-eyed woman met in the street means bad luck.

If you sing while eating you will lose your sweetheart.

If you cut your nails on Saturday you will be a widow.

My mother covered all the mirrors in the house when my grandfather died.

Girl 2—"Superstitions I learned at home."

I am superstitious about having my fortune told by a gipsy.

If you fall upstairs you won't get married this year.

A mirror broken means seven years' bad luck.

Dream of death, hear of a wedding.

Sitting thirteen at table means that one of the persons will die.

See a pin, pick it up, all the day you'll have good luck.

Dreams go by opposites.

If you give a person a pocket-book you should put a penny in it.

If you give a person anything with a point give him a penny.

The hooting of an owl is the sign of a death.

When a bride gets married she should wear something old, something new, something borrowed, and something blue.

To find a coin head up is good luck.

A change of name and not of letter is a change for the worse and not for the better.

If a child cries at baptism, it is a healthy child.

Do not count the coaches of a funeral. The number you count is the number of years you will live.

Do not pass between the coaches at a funeral.

Do not get out on the left side of the bed. It is bad luck.

Wish on the first star of the evening:

Star light, star bright,
Very first star I've seen tonight,
Wish I may, wish I might,
Have the wish I wish tonight.

To spill salt at table is bad luck.

When you shiver suddenly some one is walking over your grave.

Girl 3—"Superstitions I learned from my Mother, my Grandmother, and Nurse."

The following things bring bad luck:

To open an umbrella in the house.

To walk under a ladder.

To start anything on Friday.
To sit on a table.
To spill salt.
Funeral processions.
See a white horse, a red haired person will appear.
A present of a pointed article breaks friendship.
Peacock feathers mean misfortune.
If you rock an empty chair the person to whom it belongs will die.
Shoes on the table mean bad luck.
To turn back after starting any where is bad luck.
To break a looking glass means seven years of bad luck.
To throw hair out of the window is very, very unlucky.
To hear pigeons or crows call is bad luck.
When you shiver, some one is walking over your grave.
It is good luck to carry a rabbit's foot or a four-leaf clover.
A short fifth finger means unhappiness in love.
Find a penny head up, good luck; tail up, bad luck.
Put a garment on wrong side out, leave it on for good luck.
To get out on the wrong side of the bed is bad luck.
If a cat washes its face it is a sign of rain.
To step on an ant is a sign of rain.
If two persons say something at the same time, make a wish.
Find two nuts in one shell, make a wish.
See a load of hay, make a wish. Don't look at it again.
To count potatoes is bad luck.
For a black cat to cross your path is bad luck.
A horse shoe and a wishbone bring good luck.
If when you look at a clock the hands are vertical or horizontal, make a wish.
Pick up a pin: it is good luck.
Pick up a hairpin, gain a friend. Lose a hairpin, lose a friend.
To drop a pocket-book, glove, or comb—disappointment.
To start out and come back—disappointment.
If two people look in a mirror at the same time—disappointment or a quarrel.
An old woman I knew (Nanny Noonan) knew long before a person was hurt. She was more skillful at bonesetting than a surgeon.
In Ireland the "good people" (fairies) take one person away and leave another. They may take away a well person and leave an invalid.
Priests' houses and houses where people died alone are haunted.
The "good people" can take you away on May Eve.

Girl 4 (Jewish)—"Superstitions I know."
An itchy nose means a quarrel or money. It also means: "Be in danger, meet a stranger, kiss a fool."
An itchy palm foretells that money is coming your way.
If you start something on Friday, it is bad luck.
Number 13 is bad luck.
Walking under a ladder is bad luck.
For a black cat to cross your path is bad luck.
Dreams in general go by contraries.
If you drop a spoon it means news; two forks or two spoons dropped foretell a wedding.
Avoid mentioning the names of persons of whom you dream.
To spill salt is bad luck.
If two persons walk on different sides of a post, say "bread and butter" to avoid ill luck.
The howling of a dog or the hooting of an owl is a sign of a death in the family.

Never pass between the coaches of a funeral.'

Never count the coaches of a funeral. The number will indicate the years you have yet to live.

A horse shoe is a sign of good luck. If you find one put it over the door. It will keep out bad luck.

A four-leaf clover is a sign of good luck, especially if you find it yourself.

All kinds of fortune telling have an element of truth in them.

Make a wish on the new moon. Be careful to see it over your right shoulder.

When two persons break a wishbone, the person who gets the shorter part will be married first; the other may make a wish which will come true.

A wish made on a load of hay will come true.

Getting out of bed left foot first will bring bad luck through the day.

Breaking a mirror is a sign of death in the house within the year.

If four hands are crossed, one of the persons will be married within the year.

If you have a ringing in your ears some one is talking of you.

If your ear burns some one is thinking well of you.

Sleep with a piece of wedding cake under your pillow (three nights) your wish will come true; or, you will dream of your lover.

Hallowe'en fancies are prophecies for the coming year.

In a bride's wedding outfit there must be "something old, something new, something borrowed, something blue."

Marrying on a rainy day is a sign of bad luck.

In giving a pointed article give a penny with it or it may break friendship.

To put on some one's wedding ring is bad luck.

To sneeze when you make a statement shows it is not true.

To stub your left toe in going over a sill or up a stair is bad luck. Go back and stub your right one.

If you fall upstairs you won't be married this year.

To sit on a table is bad luck.

If you find a coin head up it is bad luck.

Marrying on the bride's or groom's birthday is bad luck.

Marrying a person with your own initials is unlucky.

If a baby cries at baptism it is lucky.

May is an unlucky month. Do not marry in May.

If you dream of snakes three nights in succession you have enemies.

Sing before breakfast, you'll cry before night.

An umbrella raised in the house means death.

Opals are unlucky.

When you boast, knock on wood.

Girl 5—

Friday, the 13th, makes me rather uneasy.

Girl 6—

If by some chance a black cat wanders into the house, it means good luck.

Breaking a mirror, seven years of bad luck.

I have almost drowned twice, so I am afraid to go swimming. I am afraid the third time might be final. This is my most important one.

Girl 7—

I feel uncomfortable if a bird flies in at the window.

I walk the same side of a post with a friend.

Girl 8—

My superstitions are all connected with snakes.

Girl 9—

Snakes and monkeys make me sick. (So do Chinamen and Negroes.) I am superstitious about going under a ladder and about pictures falling from the wall.

Girl 10—

I am superstitious about snakes and opals. I have certain beliefs about which I feel safer if I obey them, but I haven't any real fear if I do not carry them out.

Girl 11—

Cousins should not marry.
Do not start on a journey on Friday.
Do not put up an umbrella in the house.
Do not awaken a person suddenly.
I am afraid of strange old women.

B. From One Girl's Notebook

We laugh at primitive man with his system of taboos and their attendant ceremonials, and his totemistic worship. We regard with half-scornful pity the half-civilized folk from whose simple minds the old superstitions and traditions have not yet vanished. And we look with tolerant amusement on the firm faith of little children in goblins and fairies, witches and giants, magic both black and white, and wishing rings. We think it a pretty show of innocence and credulity when the youngsters listen, open-eyed and open-hearted to stories of Santa Claus and the Easter Rabbit. Immensely superior beings, we! Painfully cultured, impressively civilized, we cannot understand—so we say—the infantile simplicity of the minds of primitive men, the more ignorant of the lower classes, and little children. How *can* people believe such nonsense? we say.

The modern man or woman is practical and common-sensible!

Superstitious?

Not a bit of it!

But "I haven't had a cold all winter," says A.

Instantly, B. taps him on the arm. "Knock wood!" he warns.

And A. obediently knocks wood. "It would be a shame to break my record now," he murmurs, in shamefaced apology.

"What are you going to wear to Edna's this afternoon?"

"I don't know. I haven't decided. What would you wear if you were I?"

"How about that blue foulard? It's awfully becoming!"

"My goodness! No! I want to have a good time at Edna's and I'm perfectly miserable when I wear that dress. It rains, or somebody spills something on it, or it gets torn. That dress is a hoodoo!"

Which settles the fate of the blue foulard.

"Hanged if ever I take that fellow Jones anywhere again!"

"Why not? I thought he was a nice sort of chap."

"So he is. I *like* Jones all right; nice fellow and all that, but he's a Jonah. First time I ever went out with him, it blew a gale, and I lost my new derby—blown away! Next time, I took him to the theatre—worst show I ever saw, or hope to see! Yesterday, he and I went off for a time, and we *were* enjoying ourselves all right, when a pickpocket walked off with my watch and purse! Course I'm not blaming Jones, nice fellow. Tisn't his fault; it's just his luck. He's a Jonah!"

"I know. Yes, I know some people *are* like that."

"Gee!" says the baseball fan. "If that feller's goin' to pitch, we might as well get our money back!"

"Can't he pitch?"

"Maybe. But he's got a jinx, and every time they put him up, they lose. If he doesn't get rid o' that jinx pretty soon, he'll have to go back an' be somebody's office-boy. The managers don't want any one with a jinx like that!"

C. "My Superstitions"

Girl 1—
Thirteen.
Never watch people out of sight.
Spilling salt.
Knocking on wood.
Snakes—make me feel ill.
See the new moon over my right shoulder.
Wish bones.
Counting funeral carriages.

Girl 2—
The following superstitions influence me enough to make me change my way of doing things:
I tap on wood after making a boast.
Spilling salt makes me uneasy.
It is bad luck to change an article of clothing put on wrong side out.

Girl 3—
Opals make me "feel creepy." I am afraid to wear them.
Posts between friends are unlucky. Go around them.
Snakes mean enemies.
Knock on wood when you boast!
Wish on an eyelash.
Thunder and lightning make me very uneasy.

Girl 4—I am afraid of
Breaking mirrors;
Spiders;
Thunder storms.

Those instances among thousands show how far the superior modern is free from superstition and taboo. People indignantly deny having the faintest trace of superstition. They think you are insulting their intelligence if you hint at any such tendency. Yet here follows a list of taboos, of this present day and generation—taboos which are not the eccentric fancies of a few, but which are generally observed by large numbers of people:

1. A silent wish on a passing load of hay, or a piebald horse, will come true, if you look away immediately after wishing, and do not again (that day) see the hay or the horse.

2. If you pick up a plain, or common, pin, you will have good luck for the rest of the day. If you let the pin lie, you will miss some opportunity. But pick up the pin only if the *head* is toward you.

3. Never open an umbrella or a parasol in the house. It means trouble!

4. Never put flowers down on a bed. A funeral will result shortly!

5. Never watch a person till out of sight. It brings bad luck to you both!

6. If you receive a sharp or pointed gift, such as a paper knife, pair of scissors, hat-pin, etc., give the giver a penny. If this exchange is not made, there is danger of your friendship being literally "cut."

7. Never tell a dream before breakfast. If you do, a good dream will not come true, and a bad one will!
8. Never sing before breakfast. It means sorrow! "Sing before breakfast, you'll cry before night!"
9. It brings good luck to step up (or down) the last step of a flight of stairs with your right foot.
10. If you spill salt at the table, pick up some and throw it over your left shoulder. This is to prevent your quarreling with anyone that day.
11. Never leave a pair of scissors lying open. It may result in your having a quarrel with some one!

Beside these generally-shared superstitions, of which a far longer list could easily have been made, there are individual superstitions and taboos, having a general resemblance, but differing with the person. For instance:

Most people have "lucky" or "unlucky" days, years, articles of clothing or jewelry, numbers, and so forth. Base-ball, football, and other sports, have their mascots and their jinxes; people are "lucky," or "perfect Jonahs."

So the taboos pile up, and we find ourselves susceptible, like primitive man, to signs and omens. No longer can we look down on prehistoric man, or on the little children. They could, if they wished, look down on us, for they are not supposed or expected to know any better, and we *are!* We may not worship a hideously carved totem pole, or wait till the full of the moon to go hunting, or forbear to touch certain trees, for fear of offending an evil spirit; but we all of us have a firm though often unwilling belief in our Destiny, or Fate, our Hoodoo, our Guardian Angel, or our Nemesis.

A canvas by the writer of two hundred and eighty girls found ten free from the "13" superstition in some form. Some girls claim to have overcome it by "making '13' their lucky number." The various forms of the "13" superstition, and "knocking on wood" to avoid the evil consequences of boastfulness seem the most prevalent in so far as the sense of necessity of avoidance goes.

It seems quite evident from these examples given naïvely by American girls that our superstitious scruples "still to some extent embody ancient taboo." In many cases their survival is of a semi-humorous character. They may check action, as in the case of "Friday, the thirteenth." But when they measure themselves against strong self-interest, the wane of their power is evident. They are strongest in childhood, in youth, and in the conserving atmosphere of home life; therefore, their interest to the psychologist and educator. We have to-day reached sufficient social self-consciousness to realize that superstitions put emphasis in the wrong places at an impressionable period, and furnish irrational regulations which interfere with freedom of development.

COMPARISON OF MENTAL GRADINGS BY THE YERKES-BRIDGES POINT SCALE AND THE BINET-SIMON SCALE[1]

C. S. Rossy, Formerly Special Investigator to Massachusetts State Board of Insanity, and Interne in Psychology, Psychopathic Hospital, Boston; and
M. H. Sawyer, Formerly Assistant Psychologist, Psychopathic Hospital, Boston

That the Yerkes-Bridges Point Scale and the Binet-Simon Scale do not usually coincide in their mental gradings has already been pointed out by the authors of the Point Scale. We have here undertaken a comparison of the scales, hoping to determine what degree of difference exists between their gradings.

Our comparison is based on 400 cases examined at the Psychopathic Hospital from September, 1914, to August, 1915. These cases comprise house-patients and out-patients of both sexes. They fall into the following five groups, viz., feeble-minded, retarded, defective, psychotic, and normal. We have excluded all cases which graded below four years mental age by the Binet Scale, also cases of illiteracy and those which required the services of an interpreter.

The examination of each patient included the Point Scale, the Binet Scale, and certain supplementary tests. Both scales were given with strict adherence to the directions prescribed by their authors. In every instance, the Point Scale and Binet Scale were given to the patient at the same sitting and by the same examiner.

In regard to the tables contained in this paper, we wish to explain that in all computations we have considered every decimal above .5 as the next unit. Also, the Binet age, given on the hospital records in fractions, has been reduced to decimals for convenience of calculation. As the Binet Scale does not offer mental grading for the years 13 and 14, we have used the Point Scale as a basis for all grouping of cases according to mental age.

[1] Being P. H. Contributions, whole number 118 (1915, 21). *Bibliographical Note.*—The previous contribution, 117 (1915, 20), was by C. S. Rossy, entitled "First Note on the Psychological Study of the Criminals at the Massachusetts State Prison," published in Bulletin No. 13 of the State Board of Insanity.

Feeble-Minded

The feeble-minded group comprises two hundred (200) cases, varying in mental age, according to the Point Scale, from 4— to 12.6 years. In the following list, we have arranged the subjects in order of mental age. The last five cases, Nos. 173, 287, 285, 286, and 90, are included in this group notwithstanding the somewhat high grading by the Point Scale, because their low Binet mental age and their social, personal, and school histories are indicative of feeble-mindedness.

Feeble-Minded (200 Cases)

Case No.	P. S. age	Binet age	Chronological age
324	4—	5	28
2	4—	5.2	8
3	4—	5.4	6
5	4	4.8	12
205	4	5.4	7
4	4	5.6	9
6	4.4	5.8	8
7	4.6	6.2	8
8	4.8	6	8
207	5	5.8	17
9	5	6.4	14
11	5.3	6.4	8
208	5.3	6.4	9
304	5.3	6.8	33
209	5.5	5.4	10
210	5.5	6.8	35
12	5.5	6.8	23
211	5.6	7.4	16
212	5.7	6.4	26
14	6	7	12
213	6	7.4	10
16	6.2	7	28
326	6.2	7.2	9
214	6.2	7.4	11
15	6.2	7.4	22
1	6.6	7	16
215	6.6	7.6	16
216	6.8	7.8	10
217	7	7.4	20
13	7	8.2	26
29	7.1	7.4	9
220	7.1	6.8	77
42	7.1	7.6	14
219	7.1	7.8	12
17	7.5	7.4	10
218	7.5	8.2	30
222	7.7	8.8	14
223	7.7	8.8	24
224	7.9	7.8	18

FEEBLE-MINDED—*Continued*

Case No.	P. S. age	Binet age	Chronological age
225	7.9	8.4	28
226	8	8	11
18	8	8.6	10
19	8	8.8	13
21	8.1	7.4	21
22	8.1	8.6	30
20	8.1	8.8	19
23	8.2	7.8	9
43	8.2	7.8	11
227	8.2	8.2	10
25	8.2	8.6	32
24	8.2	8.8	28
26	8.3	8	11
322	8.3	8.2	10
27	8.3	8.2	12
44	8.3	8.2	23
57	8.3	8.2	40
58	8.4	8	18
28	8.4	8.4	17
228	8.5	7.8	21
30	8.5	8	11
32	8.6	7.8	12
31	8.6	8.2	10
229	8.6	9.2	21
65	8.6	9.4	12
73	8.7	8.2	30
232	8.7	8.2	31
230	8.7	8.6	10
34	8.7	8.6	12
33	8.7	8.8	10
231	8.7	9	18
233	8.8	8.6	14
75	8.8	9	14
36	8.9	7.8	11
240	8.9	8.4	55
35	8.9	8.8	10
85	8.9	8.8	21
238	8.9	8.8	21
112	8.9	9.2	12
113	8.9	9.2	12
235	8.9	9.2	12
117	8.9	9.2	45
236	8.9	9.4	12
237	8.9	9.4	14
239	8.9	9.4	31
38	8.9	9.4	41
234	8.9	9.6	11
37	8.9	9.6	36
10	9	7.4	17
244	9	7.4	17
243	9	8.2	16
242	9	8.6	14
40	9	8.6	15
41	9	8.8	38
39	9	9.4	10

FEEBLE-MINDED—*Continued*

Case No.	P. S. age	Binet age	Chronological age
241	9	9.4	11
245	9	9.6	48
246	9.1	9.2	12
247	9.1	9.4	15
248	9.2	9.4	14
45	9.2	9.4	44
249	9.3	9.4	56
46	9.3	9	26
118	9.3	10.2	11
250	9.5	9	11
251	9.5	9.2	16
48	9.5	9.2	21
47	9.5	9.6	19
125	9.5	9.6	33
170	9.6	9.4	16
49	9.6	9.6	15
50	9.7	9.4	16
330	9.7	9.6	54
252	9.7	9.8	18
51	9.8	9.4	14
253	9.8	9.4	15
53	9.8	9.8	23
52	9.8	10.4	15
54	9.9	9.2	21
55	9.9	9.6	22
59	10	9.2	12
56	10	9.8	13
60	10	10.6	14
62	10.5	9.6	14
64	10.5	10	42
63	10.5	10.2	15
61	10.5	10.8	13
254	10.6	10.6	23
172	11	9.6	42
66	11	9.8	27
256	11	10	20
255	11	10.4	13
67	11.1	10.2	14
68	11.1	10.2	16
256	11.1	10.2	21
69	11.1	10.2	32
70	11.1	10.2	33
176	11.1	10.6	47
258	11.2	10	15
174	11.2	10	16
260	11.2	10	20
259	11.2	10.4	17
175	11.3	9.3	15
264	11.3	10	41
121	11.3	10.2	14
72	11.3	10.2	21
177	11.3	10.4	15
261	11.3	10.4	16

FEEBLE-MINDED—*Continued*

Case No.	P. S. age	Binet age	Chronological age
74	11.3	10.4	28
179	11.3	10.4	47
265	11.3	10.4	47
71	11.3	10.6	15
263	11.3	10.8	27
357	11.3	10.8	45
76	11.3	11	37
77	11.4	9.6	16
79	11.4	10.2	17
78	11.4	10.6	16
266	11.4	10.8	42
271	11.5	10.4	24
268	11.5	10.6	18
138	11.5	10.6	20
269	11.5	10.6	21
80	11.5	10.8	16
81	11.5	11	18
267	11.5	11.2	16
270	11.5	11.4	22
180	11.6	10	13
83	11.6	10.4	19
181	11.6	10.4	23
132	11.6	10.4	42
272	11.6	10.6	20
82	11.6	10.8	15
84	11.6	10.8	37
182	11.6	11	23
86	11.7	10	17
275	11.7	10.2	16
277	11.7	10.4	42
273	11.7	10.8	14
274	11.7	11	14
276	11.7	11	18
87	11.7	11	20
389	11.7	11.2	28
282	11.8	10.4	21
198	11.8	10.6	17
280	11.8	10.6	17
88	11.8	10.6	16
123	11.8	10.8	17
163	11.8	11.2	16
278	11.8	11.2	16
281	11.8	11.2	17
89	11.8	11.2	40
124	11.9	10.6	15
284	11.9	10.8	18
128	11.9	11.2	18
283	11.9	11.4	17
173	12	11	18
287	12.3	10.4	17
285	12.3	11	15
286	12.3	11.4	16
90	12.6	11	20

Retarded

The retarded group comprises twenty-eight (28) cases, all of which show a chronological age under 16 years. The diagnosis of "retarded" has been made whenever the patient obtains a mental grading less than two years lower than his chronological age.

Retarded (28 Cases)

Case No.	P. S. age	Binet age	Chronological age
306	4.2	6	6
114	4.8	6	7
115	5.1	6	7
116	5.7	6	6
308	6.4	7.4	9
99	7	7	8
310	7.5	7.4	9
94	7.9	7.2	8
102	8.2	8.2	9
105	8.2	8.8	9
311	8.5	8.8	9
312	8.6	8.4	9
107	8.6	8.8	10
109	8.8	8.6	10
358	8.9	9.2	10
365	9.1	10.2	10
313	9.3	9.8	10
314	9.5	9.6	11
315	10.5	10.4	12
119	11.1	10	12
120	11.1	10.4	12
135	11.1	10.6	12
316	11.3	9.8	12
370	11.5	10.6	13
122	11.7	10.6	12
317	11.7	10.6	12
262	11.7	10.6	12
388	14	11.4	15

Defective

The term "defective" is used in this paper to designate patients who do not fall in the feeble-minded or retarded groups, who are not suffering from any mental disturbance, and yet who show distinctly a specialized defect in one or more of the mental functions. To determine these specialized defects, we applied tests devised by Healy, Ebbinghaus, Whipple, Knox, and others for particular mental functions. In this

group, comprising eighty (80) cases, are included a large number of delinquents and those alcoholics who do not show sufficient impairment to be classed as psychotic.

DEFECTIVE (80 CASES)

Case No.	P. S. age	Binet age	Chronological age
168	4	5.8	5
169	6.4	7	7
349	7.7	7.8	7
350	7.9	8	7
351	8.9	9	9
352	9	8.8	8
353	9.2	9.8	9
354	9.5	10	9
355	10	10	11
171	10.5	9.4	10
356	11	10.4	12
134	11.5	10.2	11
178	1.16	10.4	11
359	11.7	10.4	11
360	11.7	11.2	12
363	12.3	11.2	13
366	12.3	11.4	38
364	12.3	12	13
183	13	10.6	17
368	13	11.2	16
391	13	11.2	55
369	13	11.4	16
136	13	11.4	22
367	13	11.6	13
140	13	11.6	19
139	13	11.6	20
371	13	11.6	30
319	13	11.6	43
374	14	11.2	43
373	14	11.4	15
375	14	11.4	50
185	14	11.6	19
186	14	11.6	26
372	14	11.8	13
184	14	11.8	16
187	14	11.4	36
376	14.5	11.6	17
188	14.5	11.6	40
377	14.5	11.8	17
378	14.5	11.8	24
382	15	11.2	17
191	15	11.2	26
379	15	11.4	13

DEFECTIVE—*Continued*

Case No.	P.S. age	Binet age	Chronological age
384	15	11.4	37
394	15	11.4	38
383	15	11.6	19
190	15	11.8	18
189	15	12	15
381	15	12	16
380	15	12.2	16
387	15+	11	15
396	15+	11.2	21
141	15+	11.2	26
386	15+	11.4	14
137	15+	11.6	27
385	15+	11.8	14
399	15+	11.8	16
395	15+	11.8	19
397	15+	11.8	26
199	15+	11.8	30
403	15+	11.8	54
192	15+	12	14
393	15+	12	18
196	15+	12	20
197	15+	12	20
321	15+	12	45
400	15+	12.2	17
390	15+	12.2	17
131	15+	12.2	21
398	15+	12.2	28
133	15+	12.2	39
343	15+	12.4	16
193	15+	12.4	16
195	15+	12.4	18
200	15+	12.4	34
401	15+	12.4	40
344	15+	12.6	15
392	15+	12.6	18
201	15+	12.6	42
194	15+	15	17

PSYCHOTIC

This group comprises sixty-one (61) cases, which have been diagnosed in the hospital as suffering from permanent or temporary mental disturbance. We find here many cases of dementia praecox, chronic alcoholism, and psychoneuroses. The psychological examination was given to these cases with the purpose of determining the degree of irregularity occurring in the patients' reactions.

PSYCHOTIC (61 CASES)

Case No.	P. S. age	Binet age	Chronological age
142	6.6	7	12
143	7	7.4	7
329	8.2	8.2	19
331	8.3	9.2	54
318	8.5	8.4	43
144	8.7	8.8	16
126	9.5	9.4	41
127	9.5	9.8	55
320	9.7	9.6	24
145	9.8	8.6	23
307	9.8	9.6	23
332	9.8	9.6	46
146	9.8	9.8	26
147	10	10.2	22
148	10.5	10.4	46
309	11.1	10.2	26
149	11.2	10.8	55
129	11.4	9.4	71
150	11.4	10.4	18
333	11.4	10.8	16
130	11.5	10.2	48
151	11.5	10.4	20
152	11.5	10.6	24
334	11.5	11	18
305	11.5	11	18
335	11.6	10.4	23
336	11.6	11	35
153	11.7	10.8	12
154	11.7	10.8	20
327	11.7	11.2	14
295	11.7	11.4	25
361	11.7	11.4	48
155	11.8	10.4	26
157	11.8	11	47
156	11.8	11.2	46
362	11.8	11.2	51
158	11.9	11	22
159	11.9	11.6	29
301	12.3	10.8	30
289	12.3	11	44
337	12.3	11.8	30
338	12.6	10.2	34
339	12.6	11.2	37
340	12.6	11.2	39
150	12.8	11.4	39
202	13	11.6	43
341	14	11.8	28
342	14.5	11.6	32
203	14.5	11.8	24

PSYCHOTIC—*Continued*

Case No.	P. S. age	Binet age	Chronological age
162	15	10.8	15
161	15	11	14
165	15+	11.8	16
347	15+	11.8	36
164	15+	12	15
345	15+	12	31
204	15+	12	45
206	15+	12.2	27
346	15+	12.2	31
166	15+	12.4	29
167	15+	12.4	40
288	15+	15	39

NORMAL

We feel that the term "normal" demands an explanation, since it is questionable if truly normal individuals are ever referred to a psychopathic hospital as patients. What we have placed in this group are the cases, thirty-one (31) in number, which could not be classified as feeble-minded, retarded, psychotic, or defective. These subjects showed an adequate mental development in so far as the mental age agreed with their chronological age and their reactions to all tests were satisfactory.

NORMAL (31 CASES)

Case No.	P. S. age	Binet age	Chronological age
91	4—	4.2	4
290	7.1	7	7
348	8.2	8.2	7
92	8.3	8	8
291	8.6	8.8	8
93	9.6	9.8	9
292	11.4	10.4	10
293	11.7	10.4	11
95	12.3	10.6	12
96	13	11.2	13
325	15+	11.8	10
294	15+	11.8	13
302	15+	11.8	26
303	15+	12	30
323	15+	12	16
299	15+	12	22

NORMAL—*Continued*

Case No.	P. S. age	Binet age	Chronological age
298	15+	12	18
110	15+	12.2	37
100	15+	12.2	15
97	15+	12.2	13
103	15+	12.2	17
104	15+	12.4	17
106	15+	12.4	19
296	15+	12.4	15
297	15+	12.6	17
300	15+	12.6	24
101	15+	12.6	16
328	15+	12.6	20
108	15+	12.6	20
111	15+	15	45
98	15+	15	15

COMPARISON OF RESULTS

1. *Instances in which the two scales coincide.* Out of the four hundred cases examined, it was found that only sixteen obtained exactly equal grading by both scales. It is interesting to note that this coincidence of the two scales occurred most commonly in the mental ages of 8, 9, and 15 years. In no instance was there a case of equal grading in the years 4 to 6 and 11 to 14.

TABLE I

DISTRIBUTION OF EQUAL GRADINGS BY BOTH SCALES

Mental age	Feeble-minded	Retarded	Defective	Psychotic	Normal	Total equal ages	Number cases for each year
4	0	0	0	0	0	0	13
5	0	0	0	0	0	0	12
6	0	0	0	0	0	0	12
7	0	1	0	0	0	1	19
8	3	1	0	1	1	6	62
9	2	0	0	1	0	3	46
10	1	0	1	0	0	2	13
11	0	0	0	0	0	0	106
12	0	0	0	0	0	0	16
13	0	0	0	0	0	0	12
14	0	0	0	0	0	0	16
15	0	0	1	1	2	4	73
Total	6	2	2	3	3	16	400

2. *Percentage of cases showing higher grading by either scale.* In three hundred and eighty-four cases out of four hundred, the two scales did not coincide. We find that from 4— to 9 years mental age, inclusive, the per cent of cases that grade higher by the Binet Scale is larger than the per cent of cases that grade higher by the Point Scale, and that from 10 to 15 years mental age, inclusive, the opposite is true, i. e., the per cent of cases that grade higher by the Point Scale is greater than the per cent of cases that grade higher by the Binet Scale. Up to the 6th year mental age, *all* cases grade higher by the Binet Scale, with the exception of one case in the 5th year. In the 10th year, the Binet Scale exceeds the Point Scale in only 19% of the cases, and after the 10th year, the percentage of cases grading higher by the Point Scale is 100.

TABLE II

PER CENT OF CASES WITH HIGHER GRADING BY EITHER SCALE

Mental age	Feeble-minded		Retarded		Defective		Psychotic		Normal		Av. P. S.	Av. Binet
	P.S.	*Bin.*	*P.S.*	*Bin.*	*P.S.*	*Bin.*	*P.S.*	*Bin.*	*P.S.*	*Bin.*		
4—	0	100							0	100	0	100
4	0	100	0	100	0	100					0	100
5	10	90	0	100							5	95
6	0	100	0	100	0	100	0	100			0	100
7	25	75	67	0	0	100	0	100	100	0	38	55
8	49	45	29	57	0	100	25	50	33	33	27	57
9	53	41	0	100	33	67	71	14	0	100	31	64
10	63	25	100	0	50	0	50	50			66	19
11	100	0	100	0	100	0	100	0	100	0	100	0
12	100	0			100	0	100	0	100	0	100	0
13					100	0	100	0	100	0	100	0
14			100	0	100	0	100	0			100	0
15					100	0	100	0			100	0

3. *Average increase per year of one scale over the other.* The following tables are presented to show the average increase of one scale over the other for each year of mental age. These tables do not include cases for which the mental gradings of both scales coincide.

TABLE III

AVERAGE INCREASE PER YEAR OF POINT SCALE OVER BINET SCALE

Mental age	Feeble-minded	Retarded	Defective	Psychotic	Normal
4	0	0	0	0	0
5	.1	0	0	0	0
6	0	0	0	0	0
7	.2	.4	0	0	.1
8	.4	.2	0	.1	.3
9	.5	0	.2	.6	0
10	.5	.1	1.1	.1	0
11	.9	1.0	1.0	.8	1.2
12	1.3	0	.8	1.4	1.7
13		0	1.6	1.4	1.8
14		.4	2.6	2.6	0
15			3.4	4.1	0

TABLE IV

AVERAGE INCREASE PER YEAR OF BINET SCALE OVER POINT SCALE

Mental age	Feeble-minded	Retarded	Defective	Psychotic	Normal
4	1.4	1.5	1.8	0	0
5	1.0	.6	0	0	0
6	1.0	1.0	.6	.4	0
7	.7	0	.1	.4	0
8	.5	.4	.1	.5	.2
9	.3	.3	.6	.3	.2
10	.5	0	0	.2	0
11	0	0	0	0	0
12	0	0	0	0	0

4. *Average difference between the scales per year.* In the following table, we present the average mental age per year for each group, the average mental age per year for the five groups, and the average difference between the scales per year. This table brings out: first, the fact stated already by the authors of the Point Scale, that the greatest variation between the scales occurs at the extremes, and second, that the least variation is found in the years 6 to 10 inclusive, amounting on the average to 0 in the 8th year.

TABLE V

AVERAGE MENTAL AGE AND AVERAGE VARIATION PER YEAR FOR BOTH SCALES

Mental age		Feeble-minded	Retarded	Defective	Psychotic	Normal	Average	Average difference between scales
4	P. S. . .	4.3	4.5	4			4.3	
	Binet. .	5.8	6	5.8			5.9	1.6 higher
5	P. S. . .	5.4	5.4				5.4	
	Binet. .	6.5	6				6.3	.9 higher
6	P. S. . .	6.3	6.4	6.4	6.6		6.4	
	Binet. .	7.3	7.4	7	7		7.2	.6 higher
7	P. S. . .	7.4	7.4	7.8	7	7.1	7.3	
	Binet. .	7.9	7.3	7.9	7.4	7	7.5	.2 higher
8	P. S. . .	8.6	8.5	8.9	8.4	8.4	8.6	0
	Binet. .	8.6	8.5	9	8.7	8.3	8.6	0
9	P. S. . .	9.4	9.3	9.2	9.7	9.6	9.4	
	Binet. .	9.2	9.9	9.5	9.5	9.8	9.6	.2 higher
10	P. S. . .	10.3	10.5	10.3	10.3		10.3	.1 higher
	Binet. .	10.1	10.4	10	10.3		10.2	
11	P. S. . .	11.5	11.4	11.5	11.6	11.6	11.5	1.0 higher
	Binet. .	10.5	10.4	10.5	10.8	10.4	10.5	
12	P. S. . .	12.3		12.3	12.5	12.3	12.3	1.3 higher
	Binet. .	11		11.5	11	10.6	11	
13	P. S. . .			13	13	13	13	1.6 higher
	Binet. .			11.4	11.6	11.2	11.4	
14	P. S. . .		14	14.2	14.3		14.2	2.6 higher
	Binet. .		11.4	11.6	11.7		11.6	
15	P. S. . .			15	15		15	3.7 higher
	Binet. .			11.6	10.9		11.3	

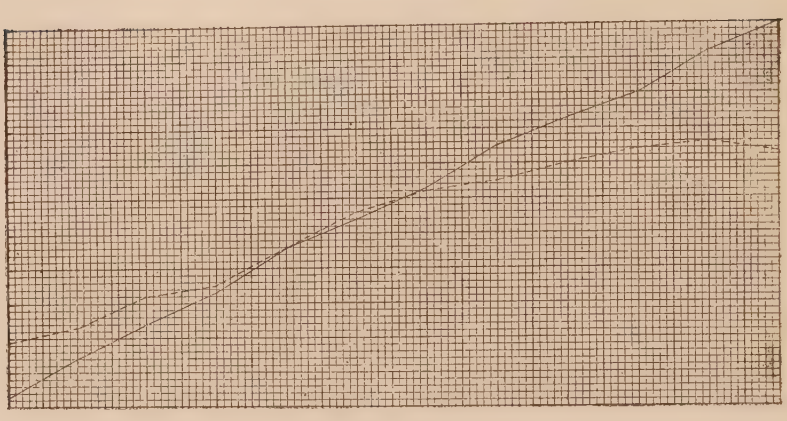

Figure 1. Relation of Point Scale grading to Binet grading. Solid line (—) indicates average Point Scale age per year. Broken line (- - -) indicates average Binet age per year. Abscissae = mental age. Ordinates = average mental age.

Conclusions

Our results, briefly summarized, show:

1. That the Binet-Simon Scale usually grades higher than the Yerkes-Bridges Point Scale for the mental ages 4 to 9, inclusive, and that the Point Scale usually grades higher for the remaining years.

2. That the Binet-Simon Scale never grades higher than the Point Scale after the 10th year, although it may show an equal grading in a few instances.

3. That the greatest variation between the scales is found at the extremes, and the least variation in the years 6 to 10, inclusive. At the 8th year, the average variation amounts to 0.

4. That the two scales exactly coincide in 4% of the cases.

For convenient reference we present again in brief form the average difference per year.

Mental age	Higher scale	Average variation
4	Binet	1.6
5	"	.9
6	"	.6
7	"	.2
8		0.0
9	Binet	.2
10	Point Scale	.1
11	" "	1.0
12	" "	1.3

Mental age	Higher scale	Average variation
13	Point Scale	1.6
14	" "	2.6
15	" "	3.7

References

Binet, Alfred and Simon, Th. A Method of Measuring the Development of Intelligence of Young Children, Chicago Med. Book Co., Lincoln, Ill., 1913.

Yerkes, R. M., Bridges, J. W., Hardwick, R. S. A Point Scale for Measuring Mental Ability. Warwick and York, Baltimore, 1915.

THE ASSOCIATION REFLEX AND MORAL DEVELOPMENT

By Gustave A. Feingold, Ph. D.

As genetic psychologists we are bound by the principle of consistency to regard every mental state peculiar to the majority of mankind as having had its origin and development in the history of the human race. Since the consciousness of right and wrong is both specific in nature and general in scope, the above principle applies to it as well as to other mental conditions. Consequently in considering the question whether those culprits who are found by present-day methods to be mentally defective should be treated as criminals or as diseased persons, we must not fail to take into consideration the probable effect that the proposed "humane" treatment of the so-called "criminal imbecile" may have on society as a whole.

Granting that the criminal imbecile acts upon impulse without knowing the quality of his deed, as one writer claims,[1] it is still a question whether it would be advisable to abolish the only agency that on purely psychological basis serves most efficiently to establish the necessary association between the socially injurious deed and its moral quality, namely, the agency of exemplary punishment.

Pawlow has shown that it is possible to establish a more or less permanent association between a conscious percept and an unconscious reflex action, such as the perception of a sound and the flow of gastric juice. Other investigators have demonstrated that it is possible to build up an association between pain and the desire to seize food in such a manner that the memory of the pain should inhibit the impulse to seize that particular food. If this can be done with animals so low in the scale of evolution as dogs and fishes, it seems reasonable to suppose that it can also be accomplished with high grade morons.

The history of civilization teaches that punishment for wrong doing and reward for good conduct have been the most satisfactory means employed in the development of the moral consciousness. Especially in primitive society where the human mind is still too dwarfed to comprehend intellectual and spiritual appeal, the infliction of pain is the only way to

[1] Goddard, The Criminal Imbecile, N. Y. 1915.

check crime.[2] That does not say, of course, that this is still either the most commendable or the most efficient method. We must not forget that kindness and leniency frequently have a greater corrective effect on incorrigible individuals and communities than do harshness and cruelty.

It is out of some such thought as this last that there has grown up a tendency within recent years to make justice take a more humane attitude toward the offender in general and toward the imbecile offender in particular. In intent this effort is good, but in practice it has certain serious defects. It should be remembered that, with the exception of marked cases, there are no sharp demarkation lines between the normal and abnormal person or between the normal and abnormal deed. Even the common definition of the abnormal act, namely, that it is an act which interferes with the developmental processes of the individual's life, is arbitrary in character; for those processes themselves are arbitrary, being relative to time, place and custom.

But although this definition is arbitrary it is the only test that each person applies to his act or contemplation thereof in order to determine its fitness or unfitness. This is true of every deed, whether it be one of prudence or one of the highest ethical type. Every individual finds himself entertaining certain obnoxious ideas in the course of his daily life. He does not summon them voluntarily; rather do they come by suggestion or free association. And there they are—foolish or criminal ideas coursing through his mind freely. If we ask how he rids himself of them, introspection shows that it is by the counter idea that they are unworthy of him, that they do not harmonize with his social, his professional or spiritual position. In brief, the questionable idea is tested by being referred to the self or some phase of the self. If it harmonizes with the self, it is accepted; if it does not, it is rejected as unfit, as "abnormal."

This process of thought-sifting, however, presupposes a high degree of intelligence. It presupposes the existence of a profession for which one has sufficient respect to desire to live up to it; it presupposes the existence of friends for whom one has high esteem; it presupposes ideals that are worthy of being cherished. Obviously this method of inhibiting incipient evil ideas will not function in the person who has no profession, nor friends, nor ideals. In his case these ideas will continue to develop till they manifest themselves in deeds of their kind.

It does not necessarily mean a lack of will power on his part. For I submit that even in the case of the cultured per-

[2] William McDougall, Social Psychology, p. 55.

son the exercise of this moral censorship is not always a voluntary process. There are certain facts which point to its being a reflex process of the conditioned type. Whether or not all our thinking is reflexive is immaterial to the present discussion. The thesis submitted is that there is strong presumption for believing that frequently when we feel we are changing a stream of thought voluntarily there is no voluntarism at all. Especially is this true if the thought has an emotional setting. Self-observation shows that the stream runs along smoothly or roughly until it reaches a certain acme, whereupon it clashes with an opposite mental complex by which it is ejected from consciousness.[3] If it is not ejected, it consummates itself in motor action of a corresponding type.

A single illustration will suffice. Whoever has had the idea of theft, revenge or murder flicker through his mind will recall how that stream of contemplation went on unhindered, or at best only faintly resisted, till it developed to a certain point of definiteness, whereat it conflicted with an opposing idea and was checked. Now why is it that the force of inhibition does not commence to operate till the force of incidence has almost completed its work? It would seem that the force of incidence would be stronger at the point of consummation than at the starting point, and that if it could not be checked at the very beginning, it certainly would not be arrested after it has developed in all its richness of imagery, of logical setting and emotionalism. Yet the reverse is precisely how things happen in the psychical realm: ideas arise in the mind and commence to develop; and, if they are ethically or socially unfit, their unfitness may be immediately realized, but they will not be checked till they have attained a certain maximum of clearness and motor potency, when, as it seems, their very expansion causes them to set off an opposing stream of nervous energy which drives them out of consciousness. This seems to indicate that ideation is reflexive in nature; or at least that certain associations can be established so firmly as to function mechanically even in so called deliberative, ethical thought. Even the "resolve" to change a stream of thought is subject to psychophysical law. This has been demonstrated by Professor Warren in his remarkable Study of Purpose[4] wherein he shows that determination is not unlike other mental states that have physiological bases. Reflex or habituated mentation, therefore, seems to be a possibility. In

[3] The same condition exists in the emotions. "Any emotion may pass over into its opposite," says G. Stanley Hall, "which latter then becomes the stronger because of the preceding antithetical state." A Synthetic Genetic Study of Fear, *Amer. Jour. of Psy.*, 1914, Vol. 25, p. 154.

[4] *Jour. of Phil., Psy. and Sc. Meth.*, 1916, Vol. 13, Nos. 1, 2 and 3.

potency it is innate, but its character and dynamic strength are determined by nurture—by instruction and proper example.

But what kind of instruction and what kind of example? The reply to this question takes two forms: one determined by the matter of instruction; the other by the nature of the individual instructed. Still confining our discussion to the moral consciousness we may say that with respect to the lesser evils and lesser virtues the information of right and wrong comes from the individual's closest associates—from his parents, his teachers and friends. From them he acquires what may be called tribe morality. But with respect to the higher virtues, his information invariably comes from society at large—from society through such mediums as the press, the pulpit, art and literature. Time after time he hears or reads of certain deeds, real or imaginary, that are followed by definite consequences; and where these consequences are painful the antecedent deeds become associated with them in such a manner that their mere contemplation evokes the emotion of fear, and this acts as a deterrent. The connative tendency is arrested by the associated affective process with which it has become linked. In this manner the individual acquires the power to check his impulses. His simple reflex dispositions are converted into the conditioned type, and each centrifugal tendency becomes mated to a centripetal one.

On the other hand, the form of moral instruction is determined by the mental plasticity of the individual. If he is naturally receptive, the method of ideal representation will suffice; if he is naturally stupid, the method of sensory impression must be resorted to.

It is obvious that the method of ideal representation, in order to be effective, requires some power of imagination and intuition, as well as ability to make inferences and to form generalizations. The problem that this form of instruction presents for solution may be stated as follows: Given an infinitesimal portion of experience—such as you yourself have gone through, or have observed some one else go through; required, what that experience in its entirety must be. Man tries to solve this problem with his life as he lives it from day to day. Whoever is capable of making the induction rapidly and accurately will be blessed; for he will be spared many social embarrassments and countless bodily and spiritual ills. He will live a psychophysically economic life, inasmuch as there will be no wasteful wear of body and soul, no blind stumbling, no past regrets and no future fears. His action will be ideal, the type that "all conscious education seeks to develop," because he will view critically every situation as it

arises before responding to it.[5] But whoever cannot make the induction in the manner described, whoever cannot foresee the social and personal consequences of his action, must go through the fires of hell before he becomes chastened; and even then ninety-nine such individuals are consumed in these fires to one who comes out a "better" man.

It is in the interest of such persons as these, as well as for its own protection, that society must adopt the impressive method of instruction—the method that consists in example and sensory experience. Nothing less than the employment of the agencies of reward and punishment upon and in the presence of such individuals as these will suffice to establish those associations between ideas and emotions which are the *sine qua non* of moral sentiments.

Now the question arises, Are imbeciles and feeble-minded persons of the higher grades capable of having inhibitory associations attached to their impulses by some form of social control? Are they susceptible of the development of sentiments? Doubtless yes if they are taken in charge early enough, subjected to the proper training, and kept in an environment where the forces incident to impulsive explosions are not too great. But such upbringing is impossible under the present form of social organization.

Some kind of social instrument, therefore, must be adopted to reach this class of individuals. How shall the potential thief and murderer and prostitute be checked before the irreparable deed has been committed? Surely not by giving them the impression that criminals who do not have a mentality of at least thirteen years, as determined by the Binet-Simon scale, will not be punished for their crimes in the usual manner. One of the most astonishing facts about the criminal imbecile is that though he is considered to be so stupid as not to know the quality of his deeds, he seems to be possessed of enough intelligence, however, to know that he can escape the maximum consequences of his wrong-doing by convincing the court that he is insane.

In view of this state of affairs we cannot rely too much on artificial tests for intelligence. Failure to meet with the chronological requirements of such tests may be due to other causes than mental derangement. This fact has been neatly demonstrated by Dr. Wallin. Employing the Binet-Simon scale he examined six poorly schooled persons all of whom, however, were eminently successful in their several callings, leading respectable lives, and rearing mentally normal and healthy children, yet all of them "would grade as feeble-minded whether rated by the 1908 or the 1911 scale," declares

[5] Robert MacDougall, Contrary Suggestion, *Jour. of Abnorm. Psy.*, 1911-12, Vol. 6, 380-381.

the investigator. He also examined a number of college students and found that several of them would be rated as feeble-minded if judged by their reaction to the Binet-Simon tests. These findings lead the author to conclude that "The majority of subnormals are dull, backward and retarded rather than feeble-minded."[6]

Since sense impression and direct appeal to the primary emotions are the only channels through which such persons as these can be reached, society must firmly impress upon them that theft and murder and lust are wrong, that they will not be condoned, and that they will be repaid not with the minimum but with the maximum penalty of pain.

This, of course, brings us to the theory of punishment; but a discussion of this important matter cannot be entered upon here. Suffice it to say, however, that of the two antithetical theories—exemplary justice and remedial justice—the former alone is consonant with the proper treatment of the criminal imbecile on the basis of what we have thus far said. For exemplary justice, as is well known, aims to establish in the social mind a permanent association between the criminal deed and some painful consequence, in order to prevent the repetition of a similar deed in the future. This form of justice pays no regard to the offender; its attention is fixed only on the needs and welfare of society. The offender may be subjected to what seems to be unnecessary pain, but that does not matter so long as potential wrong-doers take an example from his sufferings, and learn to check their criminal impulses and to conduct themselves properly.

Remedial punishment, on the other hand, pays more attention to the offender than to society. It assumes that he is not wholly responsible for his crime, that society has contributed to his criminal propensities either by neglecting to give him a proper education or by putting unnecessarily strong temptations in his path. It therefore tries to spare him all needless pain. And so, instead of sending the wrong-doer to prison, it sends him to an "institution" or to the reformatory; instead of setting him to work at hard labor, it teaches him a "trade;" instead of making him feel ashamed and accursed, it advises him to be hopeful and to look forward to his reinstatement in society's good favor.

Of course such treatment of our social derelicts is a consummation devoutly to be wished. But in the strict sense of the word there can be no remedial punishment. A remedy cannot be considered as a punishment. While undergoing medical treatment a person may suffer pain or isolation; but this can hardly be considered as punishment. Granting that

[6] "Who is Feeble-Minded?" *Psychol. Bull.*, 1916, Vol. 13, p. 92.

the individual brought on his malady by his own folly, and that while undergoing his painful treatment he resolves never to be foolish again, still his suffering cannot be considered as punishment in the sense that the social will collides with and overcomes the offender's will in the act of expressing its righteous indignation at his unbecoming deeds.

Moreover, the theory of remedial punishment is based on the assumption that character or personality is a unitary quality, and therefore if once moulded in a certain form it will remain unchanged through all storm and stress. This view, is untenable, however, since it does not harmonize with the facts of empirical psychology. Character or personality is the collective term employed to designate the impression or series of impressions that a person makes on his fellow-men by his conduct and behavior. But actions are determined by attitudes and attitudes are not entirely ego-centric, but are largely induced by the person or group of persons towards whom they are taken. In brief, character is a variable function, and it varies directly as the total situation with respect to which it functions. Paraphrasing James we may say that a man has as many characters as there are individuals or social units with which he comes in contact. It should be understood, of course, that this multiplicity of character is not artificial. The different traits of the same person manifest themselves mechanically and almost spontaneously in accordance with the eternal law of life—the law of adaptation. From this results the anomalous yet psychologically natural creature known as the kind and loving father but brutal employer; or the cringing, fawning office clerk but overbearing and sarcastic husband.

Many concrete cases of this phenomenon can be drawn from daily life. Our handwriting, for instance, differs in accordance with the person to whom we write. School children are well- or ill-behaved according to the influence a particular teacher exerts over them. Soldiers can be transformed from cowards into heroes by the magnetic word of a specific leader.

To cite only a single pathological case, we may mention that of a gifted young woman who was connected with a leading magazine. In her work she was constantly associated with the managing editor who seemed to exert a peculiar influence over her. Though self-possessed and confident in the presence of others, the moment this man entered the room she became timid, nervous and awkward, placing herself and her work in a bad light. The effect of this man's influence upon her was that she suffered constantly from deep fits of depression almost amounting to melancholia; and this lasted

till she resigned her position and broke away. Then she felt "Like a new person."[7]

Of the many cases in pedagogical literature illustrating the functional variability of character space permits us to mention but one. It is that of a high school girl who, speaking about her own conduct in school says: "Mr. P—— treats me as though I were a lady and I wish to be what he seems to think I am, but Mr. H—— acts as though he expected me to be rude in his class-room and I act my worst there."[8]

In all reason it may be asked, What is the real character of this girl? In one class-room she is a lady,—refined, dignified, respectful, gentle, kind and loving. In the other she is a hussy—rude, contemptuous, saucy, mean and hateful. Which is her true self? Or can she be said to have a true self at all? Here we have diverse behavior determined by varied attitude induced by different persons. That this condition is peculiar to all human beings is demonstrated by the fact that each of us has his likes and dislikes, his bias for and against certain individuals, that he is utterly incapable of explaining on rational grounds.

As Morton Prince remarks, "Personality (and the same may be said of character), is a complex affair in that in its make-up there enter many factors, some acquired and some innate." The unity of character depends on unity of consciousness, but strictly speaking there is no unity of consciousness, consequently there can be no unity of character. To quote again from Prince, "Neither a reference to the evidence of consciousness or to its manifestations gives support to the notion of unity. The mind is rather an aggregation of potential or *functioning* activities some of which may combine into associative functioning processes at one time and some at another; while again these different activities may become disaggregated with resulting contraction of personality, on the one hand, and conflicting multiple activities on the other."[9]

This being so, it is obvious that the growth and control of the moral consciousness depends entirely on social control. Society, on the one hand, must be so well organized within that its equilibrium and homogeneity will enable the individual at all times to find himself in situations that are not too novel or self-contradictory; while on the other hand, it must impress on the individual the necessity of accommodating himself to the standard of social propriety.

The problem, of course, still centers about those persons

[7] Münsterberg, Psychotherapy, pp. 255-256.
[8] M. H. Small, The Suggestibility of School Children, *Ped. Sem.*, 1896, Vol. 4, p. 212.
[9] The Unconscious, p. 538.

who are insusceptible of ideal instruction. Ideas and impulses which, upon being manifested cause extra-personal injury, must be permanently associated with some counter force that will check them in their incipient stages. As the socially injurious acts come chiefly from the pugnacious and sexual instincts, it follows that these instincts must be linked with an emotion in the presence of which they cannot exist or function. This emotion is fear. In the presence of fear the pugnacious and sexual instincts can neither be aroused nor maintained.[10]

Now there is only one agency that can induce fear and that is pain, either directly or indirectly experienced.[11] Since exemplary punishment endeavors to present this fear-inducing pain, it is naturally a very potent factor in the suppression of crime.

It would be wrong, however, to employ this form of punishment for minor offences, or on offenders who are not responsible for their misdeeds. Thus it would be absurd to punish a person for having committed murder during an epileptic fit. He did not bring his state on; he cannot stave it off. The execution of a thousand epileptics in his presence will not save him from a single future attack. On the other hand, the person who commits a crime while in a state of intoxication, cannot claim the same immunity. For he voluntarily brings on the mental state in which the crime is committed. Such a person ought certainly to be dealt with in a summary manner in order that others of his kind may prevent themselves from bringing on the mental condition where self-control is lost.

The exemplary form of punishment, then, must not be put aside as long as we still have in our midst people with primitive minds and primitive impulses. In this respect psychiatrists are pursuing a questionable course when they advocate the abolition of the duly constituted forms of justice in the case of criminals who are found to be subnormal as measured by the Binet or other kinds of intelligence scales. Justice not only eradicates, it also educates and modifies both the individual and the social mind; and, by inducing fear it acts as a great deterrent to wrong-doing; for fear is the prime inhibitor of present and future action, and among primitive people it becomes the sole "agent of social discipline through which men are led to the habit of control of the egoistic impulses."[12]

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[10] Prince, *Op. cit.*, p. 456.
[11] G. Stanley Hall, *Op. cit.*, p. 150.
[12] William McDougall, *Op. cit.*, p. 55.

THE ABILITY OF DEAF AND HEARING CHILDREN TO FOLLOW PRINTED DIRECTIONS

RUDOLF PINTNER, Ohio State University, and DONALD G. PATERSON, University of Kansas

The ability to carry out directions is important in almost all psychological tests. It enters into every test that is preceded by instructions to the examinee. Failure to comprehend the directions leads to failure in the test. In this sense, therefore, all tests preceded by directions measure this ability. In addition to such indirect measurement, it is possible to measure directly the ability to carry out directions in general. Tests of the ability to follow directions or commands are found in some scales of intelligence, as in the Binet scale. Such directions are given orally. A test to follow printed directions has been devised by Woodworth and Wells.[1] This presupposes ability to read and to comprehend printed language. In this it differs from orally given directions, in as much as the latter depend merely upon the ability to understand spoken language, which may be reinforced by gesture. And, keeping in mind the condition of the deaf individual, it is obvious that following printed directions differs vastly from following directions that have been given to him by means of signs or gestures. Since the work reported in this article deals with the results of Woodworth and Wells' Directions Tests given to deaf and hearing individuals, it is important to keep the above facts in mind. The comparison of the abilities of the deaf and hearing groups on these tests is not really a comparison of the ability to carry out directions in general, but rather a comparison of the ability to understand the printed language of the tests. The results give us more insight into the language development of the two groups than into the ability to do what has been comprehended.

In this study the two Easy Directions Tests of Woodworth and Wells were used. We have designated them Test A and Test B and they are reproduced here in Figures 1 and 2, with the addition of the numbers from 1 to 20 in each case. This enumeration does not appear on the original test sheet, but has been added here because frequent reference will be made to particular directions.

[1] Woodworth, R. S., and Wells, F. L. Association Tests. *The Psychological Review Monographs*, No. 57, December, 1911, p. 68 et seq.

1 Cross out the smallest dot: • • •

2 Put a comma between these two letters: G H

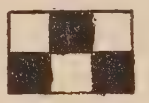
3 How many ears has a cat?

4 Make a line across this line: |

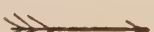
5 Show by a cross which costs more: a hat or an orange.

6 Write 8 at the thinnest part of this line: ——

7 Write any word of three letters.

8 Put a dot in one of the white squares: 

9 Cross out the word you know best: fish. brol. matzig.

10 Leave this just as it is: 

11 Mark the line that looks most like a hill:

12 How many t's are there in twist?

13 Dot the line that has no dot over it:

14 Write o after the largest number: 3 86 12

15 Mark the name of a large city: London, painter.

16 Make a letter Z out of this:

17 Join these two lines: —— ——

18 Write s in the middle square:

19 Write any number smaller than 10.

20 Put a question mark after this sentence

FIGURE 1. Directions Test A.

1 Cross out the *g* in *tiger*

2 Write 2 between the two dots: • • ——

3 How many feet make a yard?

4 Write + over the longest word: It rained yesterday.

5 Put a dot below this line: ————————

6 Write the sum of these numbers: $\frac{3}{4}$

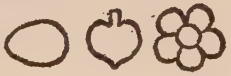
7 Make a boy's name by adding one letter to Joh

8 Make a cross in the circle:

9 What comes next after D in the alphabet?

10 Write 7 in the largest square:

11 Cross out the blackest letter in TEXAS

12 Write *g* on the egg-shaped figure: 

13 Make two dots between these lines:

14 Put the sign = where it belongs: 3 + 2 5.

15 Write here.....the middle letter of *get.*

16 Put a nose on this face:

17 Add a cross and make these rows equal:

18 Put a dot in the circle, below the center:

19 Draw a line around the three dots: • • • • • • •

20 Cross out the last word in this sentence.

FIGURE 2. Directions Test B.

Various groups of individuals were tested as follows: Test A, 187 hearing children in grade schools ranging in age from 9 to 16; 121 younger hearing children in grade schools ranging in age from 6 to 8; 23 unemployed adults tested at an employment bureau when seeking employment; 22 students of a business college; and 366 deaf children, pupils of a state school for the deaf, ranging in age from 9 to about 20: Test B, 190 hearing children from 9 to 16 years old; 124 younger hearing children from 6 to 8; 20 unemployed; 29 business college students, and 289 deaf pupils.[2]

The method of procedure differed somewhat in giving the tests to the different groups. With the deaf children the tests were given individually but no very accurate record of the time was taken, since it became obvious early in the work that the time element would be of little significance. The pupil was allowed to work at each test for as long as he wished. This same procedure was followed with the younger group of hearing children except that they were given the tests in class. With all the other groups tested the tests were given individually and an accurate record of the time kept.

Time. The results of the time taken to perform the two tests are shown in Table I. There is a very slight and by no

TABLE I

TIME, IN NUMBER OF SECONDS, FOR HEARING CHILDREN, UNEMPLOYED AND BUSINESS COLLEGE STUDENTS ON DIRECTIONS TESTS A AND B

		Age								Unemployed	Business College
		9	10	11	12	13	14	15	16		
Test A	Average..	168	178	177	137	127	123	133	123	309	84
	Shortest..	135	105	70	70	72	61	80	90	90	50
	Longest..	204	283	330	265	285	298	231	213	640	119
Test B	Average..	143	171	160	149	139	119	140	141	287	88
	Shortest..	100	110	87	78	64	72	72	90	105	58
	Longest..	177	360	384	315	315	247	197	230	620	183

means regular decrease in time for the children from age 9 to 16. There is, however, a very marked decrease in time for the business college students as contrasted with the children, and a very marked increase in time for the unemployed

[2] The writers wish here to acknowledge the assistance given them by Miss A. E. Beekman, graduate student in the department of psychology, in collecting the data for the hearing children, the unemployed and the business college students.

group. The difference between the business college students and the unemployed is very noticeable. As we shall see later this very slow performance of the unemployed is accompanied by a poor qualitative performance of the tests. If the deaf children had been timed on the tests, the average times would undoubtedly have been as long and very probably longer than the times for the unemployed.

Quality. By quality of performance is meant the number of directions correctly responded to. It is in regard to this factor that we have sought for a comparison between the deaf and the hearing. Tables II and III show the results for Test A and Tables IV and V for Test B. In the body of these tables is shown the distribution of the individuals according to the number of directions correctly answered. The total number of individuals for each age or group, along

TABLE II

DISTRIBUTION OF HEARING INDIVIDUALS ACCORDING TO NUMBER OF DIRECTIONS CORRECTLY ANSWERED. TEST A

Number of directions correct	Age											Unemployed	Business College
	6	7	8	9	10	11	12	13	14	15	16		
0	0	4	1										
1	7	11	1									1	
2	2	13	2									1	
3	3	9	2										
4		7	2										
5		2											
6		1											
7			1										
8	1	5	1									1	
9	1	3	4									2	
10		4	1										
11		2	2									1	
12		8	4									1	
13		4							1			4	
14		2	3			1						2	1
15		3	1	1		2			1			2	
16			1	1	1	4	1	4				1	
17		2	1	1	2	3	1	2		1		2	
18				2	10	14	7	8		1		3	5
19				3	9	12	21	7	7	9	3	1	9
20				2	3	5	11	9	8	5	4	1	7
Totals.....	14	80	27	10	25	41	41	30	17	16	7	23	22
25%ile.....	3	11	12	19–20	19	19	20	20	20	20	20	17	20
Median.....	1–2	4	9	18–19	18	18	19	19	19	19	20	14	19
75%ile.....	1	2	4	16–17	18	17	19	18	19	19	19	11	18

TABLE III

DISTRIBUTION OF DEAF CHILDREN ACCORDING TO NUMBER OF DIRECTIONS CORRECTLY ANSWERED. TEST A

Number of directions correct	Age										Adult
	9	10	11	12	13	14	15	16	17	18	
0	6	4	4	2	1	2			2	1	2
1	12	20	13	10	3	4	6	6	6		5
2	4	13	18	15	17	9	6	14	7	3	3
3	1		2	3	3	3	2	7	4	4	2
4		1		1	4	2	3	2	1	1	2
5			1	2				2	1	1	3
6					1		1	3	1	3	1
7						1	2	1	1		2
8	1			1	3	2	2	3	2	4	1
9					1		3	2	2		6
10						1	1	4		1	1
11							1		1	1	
12					1		1		1	1	3
13						2	1	1			2
14							1			1	1
15									1		1
16									1		
17					1		1	2			1
18									1		
19									1		1
20						1					1
Totals.....	24	38	38	34	35	27	31	47	33	21	38
25%ile.....	2	2	2	2	4	7	9	8	8-9	8	12
Median.....	1	1	2	2	2	2	4	3	3	6	7
75%ile.....	0	1	1	1	2	2	2	2	1-2	3	2

with the median, the 25 and 75 percentiles, is given at the bottom. An inspection of the medians for the deaf shows that in neither test does the median for any age rise above seven directions correctly answered. With the hearing children a median higher than seven is attained by every group from age 8 upwards. The median performance of the deaf child at any age never reaches the median of the eight year old hearing child. The seven year old hearing children have medians about equal to 14 to 16 year old deaf children. The median for the unemployed group in both tests lies just below the median of the nine year old hearing children. The distribution of the unemployed is the most scattered of any of the groups tested, ranging from one in Test A and 0 in Test B to a perfect performance. The deaf children show a fairly constant increase in ability from age to age. In both tests the adult group is slightly superior to any of the pre-

TABLE IV

DISTRIBUTION OF HEARING INDIVIDUALS ACCORDING TO NUMBER OF DIRECTIONS CORRECTLY ANSWERED. TEST B

Number of directions correct	Age											Unemployed	Business College
	6	7	8	9	10	11	12	13	14	15	16		
0	4	13	2									1	
1	1	9	2										
2	3	6	2										
3		5	3										
4		8											
5		4	1										
6	1	4	2									2	
7		5	4										
8	2	4	1										
9		5	5										
10		3	1										
11		3	2									1	
12		2	4									2	
13		2	1									1	
14		3	1	1		2	1		1			2	
15		2			1	1	1	1		1		2	
16		3	1			2	3	1	1	1		2	2
17				2	4	7	6	8	1	3			
18				3	7	7	13	6	4	3	2	2	6
19				3	4	16	8	10	5	4	5	3	9
20				1	9	6	9	6	6	4		2	12
Totals. . . .	11	81	32	10	25	41	41	32	18	16	7	20	29
25%ile. . . .	6	9	11	19	20	19	19	19	20	20	19	19	20
Median. . . .	1	4	7–8	18	19	18	18	18–19	19	18–19	19	15	19
75%ile. . . .	0	1	3	17	18	17	17	17	18	17	18	12	18

ceding age groups. This is in marked contrast to the inferior performance of this group as compared with the 18 year olds in other tests not involving language.[3]

The older hearing children, i. e. those age 9 and above, show their ability to comprehend practically all of the directions. Most of the errors made by this group are due to inaccuracy rather than to lack of comprehension. The median for this group rises from 18 to 20 and the distribution shows no paper with less than 13 correct responses. The business college students do no better than the older hearing children. Their mistakes are also due to inaccuracy. These two groups can be directly contrasted with the younger hearing children

[3] Cf. the performance of these same children on the Digit-Symbol with Symbol-Digit tests. Pintner and Paterson, Learning Tests with Deaf Children. *Psychological Review Monograph Series,* Vol. XX, Whole No. 88.

TABLE V

DISTRIBUTION OF DEAF CHILDREN ACCORDING TO NUMBER OF DIRECTIONS CORRECTLY ANSWERED. TEST B

Number of directions correct	Age										Adult
	9	10	11	12	13	14	15	16	17	18	
0	2	4	9	10	7	2	2	5	8		2
1	1	1	3	5	3	6	3	5	4		3
2	1	1	1	5	8	1	2	7	5	2	3
3	1		1	2	3	3	3	4	2	6	4
4		2		2	3	2	3	6	2	5	3
5			1		4			1	9		3
6						3	3	1	2	2	3
7							1	3	2	2	3
8						2	4	1	2	1	
9					1			3	1	2	1
10			1	2			1	1	2	1	4
11					1		2	2		1	1
12					1			1	1	1	2
13								3			
14											2
15					1			1			1
16									3		1
17						1				1	3
18						1	1		1	1	
19							1				1
20								1			
Totals	5	8	16	26	32	21	26	45	44	25	40
25%ile	3	4	2	3	5	6	8	9	7	9	12
Median	1	0-1	0	1	2	3	5	4	5	4	6
75%ile	0	0	0	0	1	1	2	2	1	3	3

and with the deaf children. The chief factor in the poorer performance of these two latter groups is the inability to understand much of the language involved in the tests. The distribution of the unemployed cases would lead one to suspect that the group is not homogeneous and includes both types of cases, i. e. those who are unable to understand much of the language and those who are able to comprehend but make mistakes due to inaccuracy.

Oral and Manual Pupils. The comparison between the orally taught and the manually taught deaf pupils is given in Table VI, which shows the medians at each age for the two groups of pupils. The superiority of the orally taught pupils is marked at the upper ages. Up to age 14 there seems to be little difference between the two groups. After this, however, the oral pupils show decidedly higher medians. The low

TABLE VI

COMPARISON BETWEEN THE ORAL AND MANUAL DEAF PUPILS. MEDIANS AT EACH AGE

		Age										Adult
		9	10	11	12	13	14	15	16	17	18	
Test A	Oral	1	2	2	2	2	3	7	6	9	7	9
	Manual	1	1	2	2	2	2	2	2	2	2	2
Test B	Oral	0	1	0	1	3	3	6	7	9	8	10
	Manual	0	0	0	0	0	3	3-4	2	2	4	3

medians for all the children combined, as shown in Tables III and IV, are obviously due to the generally poorer performance of the manual pupils. The superior performance of the oral pupils is perhaps in part due to the greater emphasis upon language training in oral instruction, but it is without doubt also due to the fact that the more intelligent pupils are selected for oral instruction.

Age of Deafness. The influence of the age at which deafness occurred upon the ability of the pupils in this test is shown in Table VII, which gives the average number of directions correctly answered in Test A for the different ages at which deafness occurred. The first column includes all cases where the time of onset is unknown; the second those born deaf; the third those who became deaf before the first birthday, and so on. It will be seen that the congenital and unknown groups show the lowest averages. There is a decided tendency for the averages to increase the later the age of onset of deafness. Evidently the auditory experience of the child before the occurrence of deafness may be of value for his language ability. The similarity of the averages for the congenital and unknown groups suggests again, what we have pointed out in other tests,[4] namely, that a large proportion of the so-called unknown cases are in reality congenital.

Relative Difficulty of the Directions. An analysis of the two tests in regard to the relative difficulty of each single

[4] Pintner and Paterson, A Comparison of Deaf and Hearing Children in Visual Memory for Digits. To appear shortly in *The Journal of Experimental Psychology.*

TABLE VII

AVERAGE NUMBER OF DIRECTIONS IN TEST A CORRECTLY ANSWERED. DISTRIBUTION ACCORDING TO AGE AT WHICH DEAFNESS OCCURRED

Age of deafness	Unknown	Congenital	0	1	2	3	4	5	6	7	8	9	10	11	12	13
Number of cases	41	151	21	53	44	17	11	11	5	1	1	3	4	0	2	1
Av. No. of directions correct	2.8	2.2	3.1	3.8	3.5	3.6	3.7	7.8	11.6	5.0	8.0	10.0	10.0	....	17.0	19.0

TABLE VIII

HEARING INDIVIDUALS. DISTRIBUTION ACCORDING TO AGE OF PER CENT CORRECT FOR EACH DIRECTION. TEST A

Age	No.	Number of Direction																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	14	7	0	50	36	0	0	7	14	0	93	7	0	21	0	0	7	0	7	14	0
7	80	39	4	76	50	1	32	24	38	24	91	30	7	43	16	1	38	22	27	30	20
8	27	67	4	74	85	0	52	55	67	30	96	41	18	63	37	7	44	48	26	63	18
6 to 8	121	41	3	73	56	0.8	33	29	41	22	93	30	9	45	19	2	36	26	25	36	17
9	10	90	100	100	100	50	100	60	90	100	100	90	70	90	100	90	100	100	80	100	100
10	25	88	100	100	100	60	96	92	96	100	100	100	52	100	84	80	100	100	100	100	84
11	41	90	88	100	100	51	98	88	93	100	100	90	63	95	80	78	98	100	93	100	98
12	41	98	98	100	100	76	98	93	100	98	100	95	76	100	83	98	98	100	95	100	95
13	30	97	97	100	100	73	90	93	97	93	100	93	70	100	63	87	100	100	93	100	100
14	17	94	100	100	100	71	88	100	82	94	100	100	88	94	94	94	100	100	94	100	94
15	16	100	100	100	100	69	100	94	100	100	100	87	100	100	87	87	94	100	94	100	100
16	7	100	100	100	100	87	100	100	100	100	100	100	87	100	87	100	100	100	100	100	100
9 to 16	187	94	96	100	100	66	96	91	95	98	100	94	72	98	82	82	98	100	94	100	97
Unemployed....	23	65	35	91	87	43	74	65	87	65	100	74	43	83	35	39	74	96	56	87	35
Business College.	22	96	86	100	100	82	100	96	100	100	100	96	91	96	64	91	96	100	96	100	100

TABLE IX

DEAF CHILDREN. DISTRIBUTION ACCORDING TO AGE OF PER CENT CORRECT FOR EACH DIRECTION. TEST A

Age	No.	Number of Direction																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
9	24	4	0	29	4	0	4	4	4	0	61	4	4	0	0	4	0	0	0	4	0
10	38	0	0	53	0	0	0	0	3	0	74	3	0	0	0	0	0	0	0	0	0
11	38	0	0	71	3	0	3	0	0	0	63	0	5	0	0	3	3	0	3	8	0
12	34	0	0	82	3	0	3	3	3	0	65	9	12	6	0	3	9	3	3	6	0
13	35	14	0	94	20	3	6	6	9	9	71	23	14	6	3	23	20	9	9	32	6
14	27	22	11	85	15	4	7	11	22	15	74	26	19	11	4	26	22	7	11	30	15
15	31	26	3	90	26	13	13	10	16	26	71	42	35	23	3	32	42	19	26	48	10
16	47	19	4	96	19	4	13	6	15	13	64	28	19	17	4	30	30	28	19	45	11
17	33	21	12	91	27	12	18	12	15	12	64	24	21	27	6	33	30	24	12	42	18
18	21	24	14	91	19	19	19	10	14	14	71	29	38	10	0	29	43	29	24	62	24
Adult	38	34	13	86	34	8	26	34	18	37	74	47	21	42	11	47	42	37	37	61	29
All deaf	366	15	5	80	16	5	10	9	10	11	69	21	16	13	3	21	21	14	13	30	9

TABLE X

HEARING INDIVIDUALS. DISTRIBUTION ACCORDING TO AGE OF PER CENT CORRECT FOR EACH DIRECTION. TEST B

Age	No.	Number of Direction																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	11	0	0	0	0	18	0	0	0	9	45	27	27	18	27	0	36	9	9	9	27
7	81	23	36	7	4	52	4	17	11	22	61	41	33	31	40	12	63	35	17	27	30
8	32	22	41	9	0	62	3	25	19	31	78	62	53	34	50	16	78	41	28	50	34
6 to 8	124	29	34	7	2	51	3	18	12	23	64	45	38	31	41	12	65	34	19	32	31
9	10	90	100	80	70	100	70	80	100	100	100	100	100	80	80	100	100	100	100	70	70
10	25	100	100	80	76	100	92	96	100	96	100	100	100	92	84	84	100	100	100	84	76
11	41	93	98	76	80	95	85	98	95	98	100	93	93	85	90	93	100	100	98	78	66
12	41	88	93	88	83	95	76	95	98	95	100	100	100	90	90	90	98	98	95	73	73
13	32	97	94	84	63	87	87	84	94	100	97	100	94	84	97	97	100	100	97	78	87
14	18	89	100	89	72	100	72	100	100	95	100	100	95	83	89	100	100	100	100	89	83
15	16	100	87	87	81	100	62	100	94	100	100	100	94	100	94	87	100	100	94	62	81
16	7	100	100	100	72	100	72	87	100	87	100	100	100	100	100	100	100	100	87	100	72
9 to 16	190	94	96	84	76	96	80	94	97	97	99	98	96	88	91	93	99	99	97	78	76
Unemployed....	20	70	80	50	50	60	50	75	70	75	95	85	75	90	55	70	95	70	75	65	65
Business College.	29	93	90	97	83	100	97	93	100	86	100	97	97	97	97	100	100	97	93	100	86

TABLE XI

DEAF CHILDREN. DISTRIBUTION ACCORDING TO AGE OF PER CENT CORRECT FOR EACH DIRECTION. TEST B

Age	No.	Number of Direction																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
9	5	0	0	20	0	0	20	20	0	0	0	0	0	0	20	0	40	0	0	0	0
10	8	0	0	0	0	0	50	12	0	0	12	0	0	0	12	0	37	12	0	0	0
11	16	0	0	6	0	6	31	12	0	0	12	6	6	0	12	0	31	6	6	0	6
12	26	0	4	0	4	0	42	19	8	8	15	8	4	4	19	0	46	4	0	4	0
13	33	9	6	12	0	6	45	24	9	15	24	18	12	9	27	0	73	15	6	3	0
14	21	10	10	43	0	14	62	43	10	33	14	10	24	14	38	5	71	14	10	14	10
15	26	15	8	46	12	8	54	58	19	23	54	35	27	4	54	27	85	27	15	12	8
16	45	18	9	22	13	9	62	44	22	31	44	31	33	7	49	13	80	18	13	11	2
17	44	5	9	41	5	11	70	41	20	25	32	18	25	11	34	16	75	18	14	5	9
18	25	12	20	68	16	16	60	56	32	28	68	28	32	8	48	16	100	16	12	12	0
Adult.....	40	25	15	57	7	30	50	52	27	47	47	42	37	27	67	22	87	35	32	27	12
All deaf.....	289	11	9	33	6	11	54	39	17	24	35	23	23	10	40	12	73	18	13	10	5

direction was undertaken. Such an analysis brings out the specific difficulties of each of the groups tested and may suggest an answer to the question as to whether the language which is difficult for the deaf child is also the language which is relatively difficult for the hearing.

The relative difficulty of any one question as compared to any other can be determined for each group by the percentage of correct answers for each direction. These percentages for both tests are given in Tables VIII to XI. Each table shows the percentage of correct answers for each of the 20 directions for each of the age groups. In addition the percentages for the younger children (ages 6 to 8), and for the older children (ages 9 to 16), and for all the deaf are given, allow-

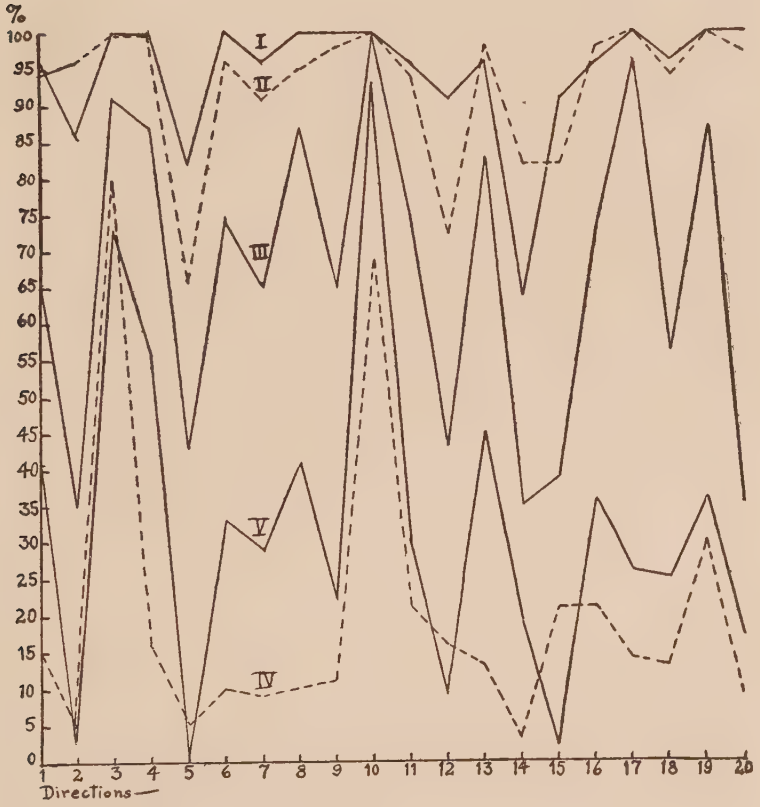


FIGURE 3.—Directions "A." Per Cent Correct.
I Business College. II Hearing Children 9-16. III Unemployed.
IV Deaf. V Hearing Children 6-8.

ing comparisons between these groups. The unemployed and business college students have been kept as groups without any division into ages. Tables VIII and IX give the results for deaf and hearing for Test A. Tables X and XI give similar results for Test B. The ranking of the questions in order of difficulty can easily be found for any age or any group from the percentages given in the tables. A cursory inspection will show that it is roughly the same for all groups at all ages, except that there seems to be a greater uniformity of the hearing groups among themselves than of the deaf as contrasted with the hearing groups.

The comparison of the relative difficulty of each direction for certain groups comes out more clearly from an inspection

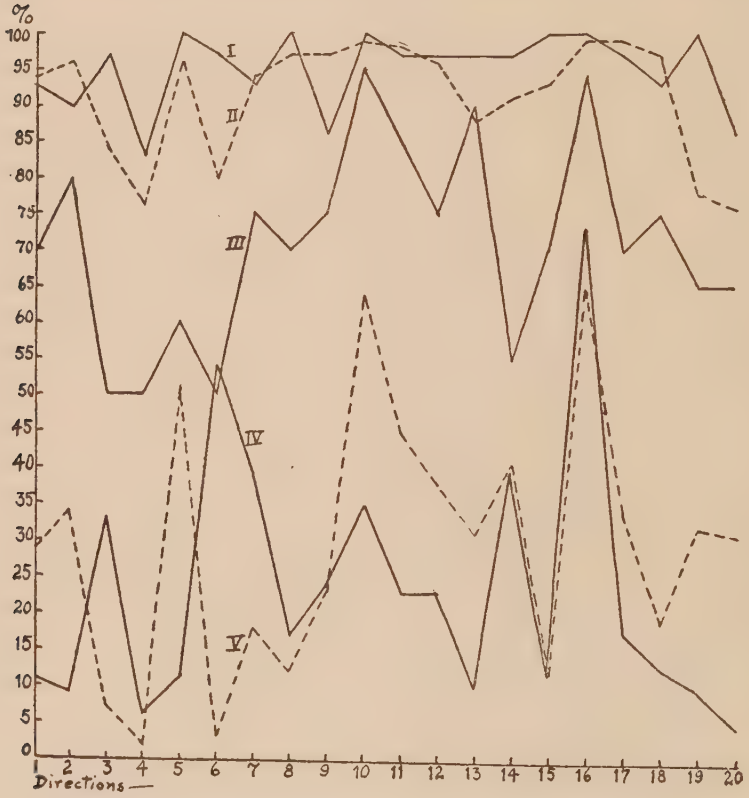


FIGURE 4.—Directions Test "B." Per Cent Correct.
I Business College. II Hearing Children 9-16. III Unemployed. IV Deaf. V Hearing Children 6-8.

of the curves shown in Figures 3 and 4. The five groups compared on each test on the curves are the younger hearing, the older hearing children, the deaf, the business college students and the unemployed. Along the abscissae the number of each direction is shown (as enumerated in Figs. 1 and 2), and along the ordinates the percentage of correct responses is given. The curves for the deaf and the younger hearing children keep remarkably close together showing that the difficulty of the directions is almost the same for the two groups. The curves for the business college students and the older children are also remarkably close together. Midway between lies the curve for the unemployed. The shape of all the curves is very similar. All show a decided tendency to rise or fall at the same point, although the relative amount by which they rise or fall is by no means always the same.

The similarity of the curves is more marked for Test A, Figure 3, than for Test B, Figure 4. On Test A there are some few exceptions to the general statements made above. At direction 13 the curve for the deaf drops slightly, whereas all the other curves show a decided tendency to rise. This means that direction 13 is relatively hard for the deaf, but easy for the hearing. At direction 15 the curve for the younger hearing children drops, while the other curves tend to rise. This is one of the few places at which the curve for the younger hearing children is decidedly below the curve for the deaf. On Test B there are a great many more discrepancies to be noted. At directions 3 and 6 the curve for the younger hearing children drops decidedly, whereas at these two places the curve for the deaf rises very markedly. The converse is true at directions 7 and 19, where the "deaf" curve drops while the "hearing" curve rises. These discrepancies might suggest that there are some slight differences in the language development of the deaf as contrasted with the hearing child. The three most marked discrepancies between the deaf and all the hearing curves occur in Test A, direction 13, which the deaf find relatively hard, and in Test B, directions 3 and 6, which the deaf find relatively easy. Direction 13, Test A, is, "Dot the line that has no dot over it" (See Fig. 1). In two other directions, number 8, Test A, and number 13, Test B, the word dot also occurs and in all these three cases the percentage of correct answers for the deaf is very low, owing to the fact that few of them understand the word "dot." The peculiar difficulty for the deaf of number 13, Test A, as compared with the hearing individuals might arise from the added fact that they are unfamiliar with the word "dot" used as a verb. Directions 3 and 6, Test B, which the deaf find relatively easy are both

matters of school knowledge. "How many feet make a yard," and "the sum of two numbers," are obviously things which have been taught in school and taught in exactly the language used in the tests. The language of these directions is, therefore, relatively easier for them than the language of the other directions, as contrasted with the relative ease and difficulty of the language of the tests for the hearing individuals.

These differences between the deaf and the hearing are relatively slight and are not to be overemphasised in view of the great amount of similarity existing in the language ability of the two groups.

This latter fact may be further emphasised by the coefficients of correlation. We have correlated the degree of difficulty of the twenty directions by the Spearman Footrule method between the younger hearing and the older hearing children and arrived at a coefficient of .64 for Test A, and .43 for Test B. The correlation between the younger hearing and the deaf children gives coefficients of .54 for Test A and .38 for Test B. The younger hearing children are somewhat more similar to the older hearing children, than the deaf are to the younger hearing children, but the difference is very slight. The interesting fact is that all the groups are so much alike.

In light of the close correspondence between the curves for the younger hearing children and the deaf, and of the similarity of these two curves with the other curves for hearing individuals, it would seem safe to conclude that the language development of the deaf, as far as we can judge from these two tests, is very similar to the language development of the hearing, and further that the average language ability of all the deaf children on these two tests is about equal to the ability of hearing children of the ages from 6 to 8.

The curves for the unemployed show a very marked similarity to the curves for the hearing children. Their language ability lies somewhere between that of the younger and that of the older hearing children. The curves for the older hearing children and for the business college students are very much alike in both tests.

Language Comprehension. The age at which the average deaf child reaches the ability to comprehend the language involved in the tests can be roughly determined from a study of Tables IX and XI. If we run down the columns of percentages for each test we may note the increase in ability to answer the direction correctly. It will be seen that some directions are never answered correctly by a third of the pupils at any specific age, e. g. directions 2, 5, 14 of Test A and many others. These are clearly beyond the ability of the deaf at all ages.

Other directions are answered by about a third or more at all ages, e. g. direction 3 of Test A, and 6, 14, 16 and perhaps 7 of Test B. These are obviously well within the ability of the deaf. Direction 3, Test A, "How many ears has a cat?" involves the very simplest language possible, using in "how many" a very common type of interrogation. Directions 6, 14 and 16 of Test B can almost, if not entirely, be comprehended without an understanding of the actual printed words. Number 6 shows two digits in the usual position of an addition sum, and probably called forth the right response in a great many cases without any comprehension of the language preceding the digits. Many papers showed a line drawn under the digits in the conventional manner and the sum written below. In the same way direction 14 shows the blank space waiting for the equal sign to be supplied, and the sign of equality is itself given among the wording of the direction, serving doubtless as an adequate stimulus. The face without a nose in direction 16 impels the observer almost instinctively to supply the missing feature. In one paper the ear is also supplied. All the directions, therefore, that are within the ability of the deaf child at any age demand a very low degree of language ability.

A few words are necessary in regard to direction 10 of Test A, which from the percentages in Table IX would seem well within the ability of the children at all ages. Direction 10 is, "Leave this just as it is," and then follows the picture of an arrow and a target. We have credited as correct all papers where this remained untouched by the observer. Obviously this does not mean that all those who left it untouched comprehended the direction and carried it out. In the lower ages the majority certainly did not understand the language, and the surprising thing is that the percentages are not higher at all ages. It is interesting to note that this direction ranks second in order of easiness for the deaf, more children (80%) being able to answer how many feet make a yard, than to leave something alone (69%). It is obvious, therefore, that the percentages in this case do not denote ability to comprehend language.

In addition to these two groups of directions that are either not understood at any age, or are understood by almost all at all ages, we have a third group where about thirty per cent are able to answer correctly at some age above age nine. Without going into detail it would seem that ability to comprehend such language as is involved in these tests comes somewhere between the thirteenth and fifteenth year. It is about this period that most of the questions that are answered correctly by the majority of the older pupils jump from a

low to a relatively high percentage. Our data are not sufficient to warrant any general conclusions, but merely suggest the desirability of further study of the language development of the deaf child.

Characteristic Reactions of the Deaf. The most characteristic difference between the papers of the deaf and the hearing children lies in the number of wrong responses called forth by the printed directions. The deaf child will make some kind of a response more often than the hearing child, when neither of them is able to understand the language of the directions. Again and again the deaf child will cover the paper with some kind of response to every question even although he is unable to understand the language. The hearing child is more apt to leave the question alone if he fails completely to understand the language involved. His errors are mainly due to partial understanding or to carelessness. Otherwise the question is passed over. This comes out characteristically in direction 10 of Test A. Of the younger hearing children 93 per cent have left it alone; of all the deaf only 69 per cent have desisted from making some kind of a response. This is true of many other questions, although we cannot see that from the percentages as tabulated.

A perseverative tendency is noted in some papers where a number is written after each one of the directions, either the same number throughout or a sequence of numbers.

In many cases the response called forth by the direction is in the nature of an association connection with some one word of the direction. In at least two cases, the direction, "Write any word of three letters," called forth the response "postcard." Again "fish" in direction 9 of Test A gave rise to the association, "gold-fish." After direction 15, Test A, we find in one paper, "Groydon, Boston, Mass.," obviously stimulated by the word "city" or "London." Again after direction 1 of Test B we have the response "in a cage." In other cases the connection between the response and the direction seems to lack any definite connection, as in the response "Mt. Healthy," to direction 4, Test A, or in the response, "Mr. Jones," to direction 9, Test B.

Direction 20, Test B, often calls forth the construction of a sentence. The word "sentence" acts as a cue to the common school exercise of constructing sentences. This tendency to make sentences of the words is also shown in other papers, where the child has obviously taken the test as an exercise in the construction of sentences. One child has made a sentence beginning with "I have" for each direction, utilising in each case some one word out of each of the directions.

A very common type of response among the deaf children

is the copying of the printed words. A tendency to do this was found in only one of the hearing children's papers. Obviously this tendency among the deaf is due to the fact that a great part of their language instruction necessitates the constant repetition and copying of words.

Conclusions.

1. These directions tests as applied to deaf and young hearing children are mainly tests of the comprehension of the language in the tests.
2. The average deaf child's ability to comprehend the language involved in these tests is about equal to that of the average hearing child between the ages of six and eight.
3. The orally taught deaf pupils show marked superiority to the manually taught pupils in the higher ages. This is probably due in large part to the greater intelligence of the former group.
4. Children who become deaf later in life show on the average a better comprehension of language than those who become deaf early or are born deaf.
5. The general language development of the deaf and hearing as measured by the ability to respond correctly to these directions seems to proceed along the same lines.
6. The deaf child seems more inclined than the hearing child to respond in some overt fashion to a situation that is not understood.

A COMPARISON OF THE HILLEGAS AND HARVARD-NEWTON SCALES IN ENGLISH COMPOSITION

By W. E. Stoddard, University of Maine

During the past few years considerable activity has been shown in the measurement of school results. Scales have been devised for the measurement of nearly all of the subjects taught in the elementary schools and several, like the Courtis Arithmetic Tests, have been generally accepted and widely used.

English Composition, however, has been one of the subjects for which no scale has had general recognition, although there are two in use at the present time. One of these was devised by Dr. Hillegas, formerly of Columbia University, and the other, known as the Harvard-Newton scale, was devised by Dr. Ballou of Harvard.

The Harvard-Newton scale is the later of the two and claims to be superior to the Hillegas scale in that it is specially fitted to measure intensively the four types of English Composition, while the Hillegas scale, as its units are selected without reference to type, can only measure the general form.

Several investigators who have used the Hillegas scale, have made this criticism and as the writer has seen no study made to prove or disprove the statement, he ventures conclusions drawn from a direct comparison of the two scales when both were applied to 539 compositions secured in a survey of the Old Town and Orono, Maine, school systems, conducted by the advanced class in Education at the University of Maine. The survey was made during the winter and spring of 1915-1916, all of the composition work being done within the single period of two weeks.

A copy of the following directions was given to each teacher in whose school the tests were to be given. The tests were given in all of the grades in both towns from the fifth to the ninth (first year high) inclusive.

Directions

Subject:—The Best Time I Had During Vacation.

Allow two full periods for the work, either on the same day or on two succeeding days as it happens to be convenient. Allow length of period as follows:

Fifth grade— 25 minutes
Sixth grade 30 "
Seventh grade and above—35 "

Announce the topic to the class and write it on the board. Allow the class ten minutes in which to think and ask questions; then let them write for the remainder of the period. The pupils are not to use any reference books or dictionaries and the teacher should answer no questions after the ten minutes.

If two periods are taken in succession on the same day, allow the second period for correcting and copying. If the periods are taken on two succeeding days, collect the papers at the end of the period on the first day and redistribute them on the second.

Have each pupil write name, age, grade and date at the top of each page. Do not have the pupil write more than two pages of composition paper (8½ x 11). One page is preferable.

A narrative topic was chosen for the reason that this would be a topic of general interest to all of the pupils and so that the themes would all be on the same basis. The time given and other conditions were made to conform as strictly as possible to the conditions under which the pupils were accustomed to do composition work.

Scoring Results

Five hundred and thirty-nine compositions in all were secured. Each teacher had arranged the papers. Each set of papers was then carefully shuffled and ranked according to the Harvard-Newton scale, the results tabulated, medians for each grade found and the curve representing the medians was plotted. The papers were again thoroughly shuffled and ranked according to the Hillegas scale and results were recorded as before.

In the case of the Harvard-Newton scale it was found that there were no samples which ranked below 46.9%, the scale being primarily made for seventh grade work and above. It was necessary therefore to find samples by which to measure the compositions which fell below 40%. This was done by arranging all of the compositions between 0 and 40% in three groups, arranging the compositions in each group in order of merit and selecting as samples compositions taken from the middle of each group. These were compared in value with the lowest sample on the original scale and were ranked accordingly. Thus the scale was completed to measure composition in all of the grades.

The values of the samples in the two scale are as follows:

Hillegas	Harvard-Newton
937 units	93.5%
838 "	83%
772 "	76.2%

675 units	66.4%
585 "	56%
474 "	46.9%
369 "	36%*
260 "	27.9%*
183 "	16.7%*
0 "	0%

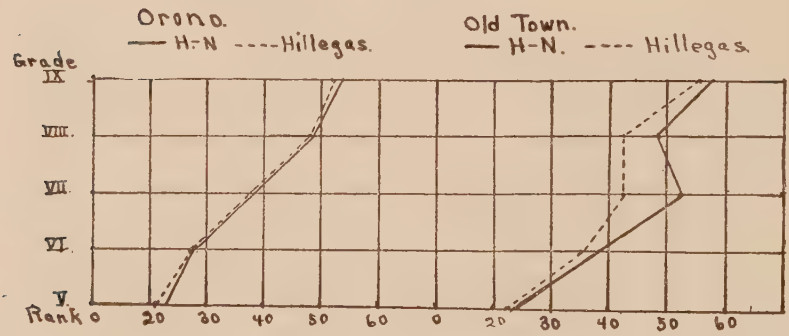
As the Hillegas scale ranks on the basis of one thousand units and as the Harvard-Newton scale ranks on the basis of one hundred per cent, the writer was easily able to place the curves showing the results obtained from both measurements on the same chart.

All of the scoring was done by one person.

Graphical Representation of Results

Table of Medians

Grade	Orono Hill.	H-N	Grade	Old Town Hill.	H-N
IX	514	52%	IX	550	58%
VIII	483	49%	VIII	420	49%
VII	383	38%	VII	423	52%
VI	277	28%	VI	354	38%
V	205	22%	V	217	22%



Conclusions

The results obtained seem to warrant the following conclusions:

1. The close correlation between the results obtained from both scales should create a presumption in favor of the reliability of school measurement scales in general, as both scales devised differently by different men seem to show the same general progress from grade to grade.

* Figures representing values of compositions chosen as samples by the writer.

2. In regard to form, we find that both scales efficiently measure the mechanics of composition.

3. In regard to content, we find that the Harvard-Newton scale measures the literary value of the composition much more accurately than the Hillegas scale. The samples on the Hillegas scale are chosen without regard to type of composition and it is very difficult to compare a narrative composition with a sample of exposition or argumentation and grade it at its true worth. A study of the chart will show a divergence in the curves representing the Old Town schools. An interview with the teachers and the superintendent brought out the fact that content and expression had been especially emphasized in the sixth and seventh grades for the past year. The Harvard-Newton scale, therefore, had correctly measured the progress, while the Hillegas scale had not.

4. A comparison of the assigned values of the two scales shows them to be numerically equal, or practically so, as far as the Harvard-Newton scale extends. Actual application of the scales showed that these identical values were at the same proportional distance from zero. The derived values on the Harvard-Newton scale showed the same proportional similarity to the lower units on the Hillegas scale. From this similarity it can be readily seen that the steps between the scales are practically identical. The shape of the curves in both measurements bears out these conclusions.

LITERATURE MEMORIZATION IN THE LIGHT OF EXPERIMENTAL PEDAGOGY

By Maxwell F. Littwin, A. M.

1. Introduction

The subject of literature memorization has received little, if any, methodical treatment in our schools. Scant consideration has been given to the important results derived from scientific research in this field, and the average teacher pursues his course in this subject in a more or less haphazard way, sometimes striking the right procedure, but more often working in the dark. This is a situation that requires remedying. When we consider that the aim of learning "memory gems" is to foster a love for the good things in literature, and to store the mind with noble thoughts expressed in beautiful language, we must conclude that greater attention ought to be paid to the theory and practice of successful memorization. Both teachers and pupils must be made thoroughly acquainted with the most economical ways of teaching and of learning the memorization material. With this object in view the writer wishes in this article: (1) to present a brief and critical-pedagogical account of the investigation of literature memorization in the elementary schools; (2) to indicate the main conclusions which have been established by previous experimentation in this field; and (3) to raise the questions which ought to be considered in the further experimental-didactical study of this subject.

2. "Economy" and "Hygiene" in Memorization

It will be well, before proceeding further, to define the terms "economy" and "hygiene" as applied to the memorization of literature, in order that we may use them as touchstones by which to determine the value of prior experimentation in this field.

We usually employ the words "economy" and "hygiene" to mean the saving of time and energy which follows from the use of a particular mode of learning for the achievement of a particular result. The application of these terms to memorization gives us the following definition, quoted from Meumann (10, p. 373):

"That method of learning is most economical which secures a particular memorial effect or attains a particular memorial purpose in the shortest time, with the least number of repetitions, and with the minimum degree of fatigue; and this method may be regarded as the most economical only with reference to this memorial effect and this memorial purpose. Of these three determinations, the learning-time measures the economy of time; while the economy of energy is measured by the number of repetitions, and, in less precise form, by the amount of fatigue. No other accurate means of measurement is at our disposal."

In addition to the above criteria for the evaluation of method, we must consider the question: What purpose actuates our memorization? If our object is merely the temporary retention of the material learned, we may be satisfied with a method which will prove ineffective when the aim is permanent retention. Likewise, if we desire complete instead of merely partial recall of the material, our appraisement of a method will be correspondingly modified.

Since we are here concerned with the memorization of literature in the elementary schools, literature that consists mainly of poetry, we must decide that our purpose is permanent and complete retention; for the primary value of literature memorization lies in the fact that the mind is filled with noble thoughts and feelings expressed in artistic language.

Bearing in mind the criteria above indicated, we conclude that method to be the most desirable which:

a—Gives more quickly and with fewer repetitions a first perfect reproduction;

b—Results in more correct and uniform associations; and

c—Leads to more confident reproduction, and more accurate and permanent retention.

A further preliminary word is necessary as to the conditions of scientific experimentation, in order that we may be able to criticize intelligently the investigations which have been conducted in the field of memorization. These conditions may be briefly characterized as external and internal; the former being concerned with the experimenter, the material employed, the modus operandi, atmospheric and barometric conditions, the time of day when the experiment is performed, and the like; while the latter deal with those upon whom the experiment is performed, with their psycho-physical nature, their bodily and mental vigor, their emotional state, their attention, and their interest in the experiment. If an experiment is to consider the influence of a certain factor, it is absolutely essential that all the factors, external and internal, except the

one in question, should remain, as far as possible, constant, and under the control of the experimenter; otherwise, the conclusions of the experiment will be vitiated. Particularly in the investigation of memorial activity is it necessary to have the material a constant factor, and it was for this reason that Ebbinghaus (5), the pioneer in this line of experimentation, suggested the use of "nonsense syllables." This gave him a material (a) that could be so manufactured as to be of equal difficulty throughout; (b) that could be manufactured in sufficient quantities to extend the experiment over a long time; (c) that was capable of accurate quantitative gradation; (d) that permitted of a systematic, mathematical treatment of the errors made in reproducing it; (e) that, on account of its meaningless character, permitted of no appeal to the learner's apperceptive intelligence.

It is from experimentation with this medium, therefore, that most of the laws of memorial activity have been deduced; and, in this discussion we shall first consider experimentation with such non-significant material. Following this, we shall examine the experiments with significant material, indicating here the additional factors that must be taken into account.

The first problems with which memorization study dealt were in the field of the Mode of Presentation. This includes within itself the following elements:

a—The Kind of Material;
b—The Ideational Types;
c—The Method of Presentation itself (10, p. 144).

3. Kinds of Memorization Material

The memorization material may be either meaningless or meaningful. The former has been sufficiently explained above; the latter requires further elucidation. Meaningful material may be relatively coherent,—such as names, dates; or coherent. The coherent material may be further sub-divided into prose and poetry,—and again into relatively abstract matter, dealing with theories, speculations; and relatively concrete matter, dealing with description, narration, etc.

Presenting this in outline, we have:

- Kinds of Material
  - (1) Meaningless (nonsense syllables)
  - (2) Meaningful
    - (a) Relatively incoherent (names, dates, synonyms)
    - (b) Coherent
      - 1—Prose
        - (a) Relatively abstract
        - (b) Relatively concrete
      - 2—Poetry

4. The "Ideational Type" and the Mode of Presentation

In the "Ideational Types" we find a very important item for consideration. It had been formerly supposed that the method of presentation determined the method used by the learner in his perception and understanding of the material. Investigation has shown that this is only partly true, and that the learner's method is a joint product of the mode of presentation and of his ideational type (10, p. 149).

A preliminary word about these "types." Experiments in the learning process have demonstrated that different individuals recall verbal images to consciousness in different forms. There is the "auditory" individual who hears the auditory images of words; the "motor" individual who mentally experiences the muscular sensations arising from the adjustment of his vocal apparatus; and the "visual" type who sees before him the visual images of printed or written words. Besides these, there are various combination types, known as "mixed" types (11).

In the process of imprinting, these types present radical differences. "In the auditory and motor types, the process of imprinting consists in the formation of a series of successive auditory or vocal images of spoken words, or series of successive innervations of the vocal muscles, which, in turn, are accompanied by sensations or images of movements; or he makes a mental note of the 'melody' of what is spoken to him, and he remembers the sounds and the rhythmic sequence of the words and syllables which he memorizes. And in this melody the various sounds then assume their proper auditory and rhythmic positions. Now, in the act of reproduction, the auditory or motor individual is unable to present the whole series simultaneously to his consciousness; his only alternative is to allow the successively learned items to run their course again in successive order, in the form of either concrete or verbal images. The individual who remembers visually proceeds in a wholly different fashion. The syllables or letters which are to be remembered, he arranges side by side in the form of visual images: and the result of this internal vision, namely, his visually ideated series of letters, he can see before him either simultaneously or in successive sections" (10, p. 182; also 11).

Besides the above differences in the learning types we have differences in the type of attention, some pupils being characterized by intensive attention, while the attention of others may be called distributive. We have also the rapid learner who learns quickly, but forgets quickly, and the slow learner

who learns more slowly but whose retention is more trustworthy.

A. Pohlmann attempted to investigate the relation of method of presentation to ideational type in school children. His experiments are set forth in Meumann (10, pp. 151-154). His subjects: Sixty school children, from nine to fourteen years of age (ten of each age). His Material: (1) familiar significant material; (2) two-syllable names of concrete objects; (3) concrete objects themselves. His Modus Operandi: (1) He presented the objects visually; (2) he presented the objects visually and at the same time pronounced their names; (3) he pronounced the names alone; (4) he presented the names visually; (5) he combined the visual and auditory presentation of the names; (6) he combined the visual presentation of the names with pronunciation by the observer. The stimuli were presented only once, and were immediately reproduced in writing.

Results: (1) The retention of objects was better than that of words; (2) Auditory presentation, on the average, produced better results than visual presentation; (3) The combination of auditory-visual-motor presentation gave the poorest results of all.

Commenting on the above experiments Meumann observes (10, p. 152):

"These results show, however, that the superiority of auditory presentation holds only in the lower classes of the schools; beyond the intermediate classes visual presentation gradually gains the ascendancy, and in the upper classes the relations are reversed, visual presentation being more advantageous here. This state of affairs is undoubtedly a product of the prevailing methods of teaching, because instruction is addressed more to the ear in the case of younger pupils, while in the case of older pupils, the visual sense is more concerned."

The above conclusions have been verified also by Miss Conway (8), who found that when children enter school their auditory memory is best; but that when they have been in school for some time their visual memory is superior.

When Pohlmann also investigated the comparative retention of words and of concrete objects, for intervals of twenty-four hours, and of three days, he found that: (1) the best results were furnished by presenting the objects; (2) the visual-auditory-motor mode of presentation was the worst; (3) the purely auditory mode of presentation was better; (4) while the auditory-visual presentation was the best.

In an experiment with unfamiliar and non-significant material Pohlmann found that visual presentation gave the best results, a conclusion that Meumann agrees with.

Pohlmann's work has great pedagogical value, in that it shows the importance of methods of presentation for different sorts of material. It shows also that in presenting material to pupils their ideational types must be taken into account; that the auditory-visual method of presentation is the best; and that concrete presentation leads to more permanent retention.

Pohlmann's experiments "do not, however, furnish a final verdict concerning our problem, because they fail to provide for a complete separation of the component processes which constitute apprehension" (10, p. 154). In class-room experiments it is impossible to isolate the mental effect of the various methods of sensory presentation in any definite fashion. Where auditory presentation is used, we have no guarantee that the pupils will not use motor or visual imprinting. If now we take each individual separately and use such methods as will enable us to isolate each sense, we are met with the objection that the experiment is of no practical value for the school-room. The most trustworthy method is a combination of both of the above, and this Pohlmann did not employ.

A question that must now be answered is: Are the ideational types capable of modification? Radosavljevich answered this question in the affirmative. He investigated the memory of eleven school children from seven to thirteen years of age. The learning was done solely by a method of reading and sotto voce pronunciation. He found that his observers gradually approached more and more closely to the auditory type of memory. From this he concluded that the ideational types of children are modified by long continued learning (10, p. 185).

Meumann also mentions an experiment of Ziehen, who found that a boy, to whom words were presented orally, always made use of visual images of written words, because he had been taught to spell by the visual method (10, p. 226).

From the above investigations we are able to appreciate the significance of the ideational type in class-room memorization. If the teacher is aware of the relation of method of presentation to ideational type, he will choose the mode of presentation which will reinforce the ideational type of the pupil instead of hindering it. The question of visual or auditory presentation thus becomes a question of discovering the pupil's ideational type.

It is also important for teacher and pupil to know whether the learner should use only those memory aids suited to his peculiar type of learning or whether he should employ as many aids as possible. At first glance it would appear that

the latter is the better course to follow,—that the greater the number and variety of the associations the more permanent will be the impression. Meumann's experiments, however, demonstrated that unpracticed individuals succeed better when working only with those helps customary to their memory type; and he concludes that at first children should be taught to use properly their innate memory aids, and only when they have acquired some degree of skill should they attempt to improve their memory performance, by gradually remedying the deficiencies of their memorial faculty (10 and 11).

If it is imperative for the teacher to take into account the ideational type of his pupils, it becomes necessary for him to have methods of determining such types. For this, many suggestions have been offered, although they are rather ingenuous devices than accurate and systematic methods. Meyerhardt (11) indicated the following:

(a) Take twenty-five letters or numbers divided into five lines of five each; arrange them uniformly in a square; then divide into twenty-five equal squares, and tell pupil to memorize these in the general way from the left to the right. When pupil is able to recite these without error, ask him to recite those letters or numbers which form a diagonal line from the left to the right,—or those numbers contained within a vertical line of squares. The visualiser will find this task easy, but the auditory type will experience much difficulty.

(b) A number of phrases, words, or syllables are presented first to the visual, and then to the auditory memory. In the first series, during one hundred seconds, fifty words, one every two seconds, are exposed to the eye of the pupil. In the second series, fifty words of similar nature, one every two seconds, are spoken with a loud voice. If a pupil retains more words of the first series than of the second his visual memory is the stronger, whereas if the second series results in the retention of a greater number of words, his auditory memory is superior. This device is of course open to the same objections, made above, in connection with Pohlmann's experiments.

The visualiser can also be determined because he confuses words that look alike, although they may have entirely different sounds. He spells long words backwards almost as readily as forwards; while the auditory and motor individuals find this difficult.

Another scheme suggested by Meumann (10, p. 338) is to ask children to record all of the visual, auditory, and motor ideas which occur to them in a given period; or to ask them

to report the first idea which comes to them when a word is pronounced in their presence.

With the foregoing brief exposition of method of presentation in relation to ideational type, we can now proceed to the method of presentation in its other aspects, keeping in mind that the value of a method should be determined by (1) the time required for learning; (2) the expenditure of energy; and (3) the permanency and accuracy of retention.

5. The "Part-Procedure," the "Whole-Procedure" and the "Mediating Procedure"

First let us answer the question whether memorial material should be learned as wholes or in parts.

In order to determine the method of memorizing used by unpracticed learners, Lottie Steffens (11), a student of Professor G. E. Müller at Göttingen, performed several experiments, with six adults and one nine year old boy. To the former she assigned for study two verses from Byron,—to the latter, two six-line parts of a German poem. Her subjects were given no directions as to how they should work. Their procedure was usually as follows: 1—Each learner divided the verse into parts; 2—Each repeated parts already learned by going back, or occasionally while learning other parts; 3—Each repeated the first lines oftener than the last ones; 4—Difficult parts or words were learned by special, separate repetitions; 5—The end of one part and the beginning of the next were connected by special reciting; 6—The adults showed a tendency to learn by attempting to recite what had been half memorized, looking back at the original for purposes of checking; the boy learned entirely by means of reading; 7—The boy learned most erratically, wasting twenty-one repetitions on the first two lines, while using only six for the last two. Upon test his recall was irregular and hesitating, the retention superficial.

Notwithstanding certain individual differences in methods of learning, it will be found that most unpracticed learners adopt a procedure similar to the above. Their learning proceeds in three stages: First, there is the stage of adaptation and orientation, during which the learner "sets himself" for the task in hand. Second comes the stage of passively receptive learning, when the impressions are being repeated to the end that recall may be possible. Third is the stage of tentative recitation, checked and controlled by the learner. Finally follows the fixing and strengthening of uncertain parts.

What strikes the investigator with peculiar significance is the inevitable tendency to divide the material into parts; and

yet this method of learning has been found by experiment to be the most uneconomical from the points of view of economy of time, of expenditure of energy, and of permanence and accuracy of retention.

There are in general two methods by which the learner may memorize his material:

1—He may divide it into sections, and learn each section as a whole. This is called the part-procedure.

2—He may read his material through from beginning to end during the entire process of learning. This is the whole-procedure.

Many experiments have been performed to determine the values of these two modes of learning. Miss Steffens (10, p. 238) used stanzas of poetry of as nearly equal difficulty as possible. These stanzas were learned by several persons first by the part-procedure, and then by the whole-procedure. She found that, on the average, the learning of a verse by the whole-procedure required 167 seconds, while by the part-procedure the time taken was 183 seconds. She performed similar experiments, using nonsense syllables, and found that here too there was a slight difference in favor of the whole-procedure. The children's results were on the whole the same as those of the adults.

Her explanation of her results was as follows:

a—In the part-procedure many false and useless associations are formed. For example, two lines are repeated several times, and at each repetition an association is formed between the end of the second line and the beginning of the first. Then the third and fourth lines are learned in the same way. When the two pairs are connected we have a new association between the second and third, and the fourth and first lines. These new associations compete with associations already formed. Watt (14, p. 50), commenting on the same point says: "If one hundred lines of verse were learned in this way, in twos and fours,—say, verses from Pope—there would be formed between the lines 198 or 148 associations, of which only 100 would be ultimately required. Every second one of these would be blocked by two useless associations, and in order to be safe from their power would have to be raised to a much greater strength than would otherwise have been necessary. In time the strength of all the associations formed would decrease, and those necessary to correct repetition of the verses, being in many cases formed later than the false associations, would lose strength more rapidly than these. Thus, in the end, many of the false associations would be the more powerful and therefore effective."

b—In learning by the whole-method we have the advan-

tages of mediate association, association between parts widely removed from one another, and of "absolute position," the position of the parts in the whole. These advantages are lacking in the part-method.

c—In using the whole-procedure, our learning is uniformly distributed over all parts of the material, and if all the parts are equally difficult, we avoid the error of devoting too many repetitions to certain parts and too few to others.

The investigations of Miss Steffens, while instructive in many particulars, are defective for the reason that the only criterion used by her was the saving in time. She omitted consideration of the factors of expenditure of energy and of accuracy and permanency of retention.

It is for this reason that we must turn to Meumann's experiments at Zurich in 1901 (10, p. 240), before we can truly determine which method is the most "economical."

Meumann's aim was to find:

a—Which method of learning leads to faultless recitation from memory in the shortest time and with the least number of repetitions.

b—Which method of learning secures the best distribution of attention over the material, and the best formation of associations between its parts.

c—Which method gives the most accurate reproduction and the most permanent retention.

d—In what way the meaningless or meaningful nature of the material influences the efficiency of the various methods.

In his experiments Meumann employed both adults and school-children.

He found that: (1) Learning by parts becomes more and more disadvantageous the more the material is subdivided; and the more closely part-learning approximates to whole-learning, the more rapidly and certainly is the work done; (2) The whole-procedure is even more advantageous with significant than with non-significant material, the reason being that here the learner's apprehension of the meaning, and of the logical coherence of the material is much more vivid and certain.

One of his observers, Kl., learned two stanzas from Schiller's "Dido" on each of two consecutive days; on alternate days she used the part-procedure, each stanza constituting a part, and on intervening days, the whole-procedure. As to the factor of time, Meumann found that the whole-procedure showed an average saving of 14.5 minutes per stanza, over the part-procedure. As to the factor of energy, he found that the part-procedure required thirty-three repetitions for the memorization of each pair of stanzas, while the

whole-procedure required only fourteen repetitions. As to the factor of retention, it was discovered that the stanzas learned by the whole-method were recited from memory with greater certainty. Later, when the stanzas had been partly forgotten, they were re-learned, those which had originally been learned as wholes being re-learned most rapidly.

Another observer, who memorized five eight-line stanzas of poetry each day for several days,—employing the whole and part methods alternately,—required 32 minutes and 45 repetitions for each stanza, with the part-method; while he needed only 12 repetitions, but approximately the same amount of time, with the whole-method. This shows that the gain is not so much a gain in time as a gain in saving of repetitions, and in accuracy and permanency of retention.

Meumann's explanation of the advantages of the whole-method is as follows:

a—The uniform distribution of repetitions results in more stable and uniform associations.

b—The associations are all formed in the direction in which they are to operate in reproduction. There are no backward associations.

c—The position of each section in the whole is formed correctly at the outset, and is reinforced by each successive repetition.

d—The meaning of the material is better understood, and thus our learning is more strongly reinforced.

e—The better apprehension of the meaning prevents a relaxing of concentration.

When the experiments were extended to children Meumann obtained somewhat different results (10, p. 248). Here he found that at first the advantage in the saving of time lay with the part-procedure. He explains that this is due to the fact that the child is at first discouraged by the whole-procedure; he does not perceive his progress, becomes depressed, and this dejection of mood exercises an unfavorable effect upon his learning. When, however, the child was "let into the secret," was explained the advantages of the whole-method, and had used it for a time, the results were very different; and after a little practice even the child learned nonsense material more economically by memorizing it as wholes, than by dividing it into parts.

With significant material the whole-procedure was as advantageous for children as for older persons. An eight-year old boy learned a verse of Goethe's "Erlkönig" in seventeen repetitions by the part-method,—in eleven repetitions by the whole-method. Subsequent re-learning was also much easier

where the latter method had been employed. Meumann found this true of all the other children, provided the material was not long enough to fatigue them.

The above experiments seem to establish that: "For adults and children it is more advantageous, and it is psychologically and pedagogically more appropriate to learn every sort of material as a whole than to break it up into parts." (10, p. 249.) Yet there are two important limitations to this principle:

a—It is extremely hard to find material for school memorization that is equally difficult in all its parts. Each piece of literature often contains parts of special difficulty. If we use the whole-procedure throughout, we shall have to waste many repetitions on account of such troublesome parts, even though the greater part of the material is already well learned.

b—Again, experiments show that our concentration of attention, during the act of learning, is not entirely uniform; that it proceeds in a curve, showing a maximum intensity at the beginning and end, but weakening at the center. If the whole-method is used we find that the beginning and the conclusion of the material are much better learned than the center portion.

The foregoing disadvantages of the whole-method of learning are overcome by the "mediating-procedure," which combines the advantages of the whole-method and of the part-method. In this procedure the material is divided into parts according to the degree of difficulty of context, and the parts are marked off by a stroke. In reading, the learner pauses for a short time at the end of each section, but he does not return to the beginning; instead, he continues to read through to the end. The pauses enable the attention to return to the task with increased vigor,—while, at the same time, retrogressive, inhibitory associations are prevented. The parts of special difficulty are learned by themselves, and then the whole series is read again, until the entire context is uniformly memorized.

Ebert and Meumann (11) in an extended series of experiments with nonsense syllables compared the relative values of the whole-, the part-, and the mediating-procedures. They came to the following conclusions:

a—Each one of the old methods has its characteristic strong and weak points:

(1) The whole-method is bad because it permits a weakening of attention at the center of the material; it is good because it forms associations only in the direction in which they will be needed in reproduction.

(2) The weakness of the part-method lies in the fact that it allows the formation of irrelevant associations; its strength is found in the fact that the attention is renewed and invigorated at the beginning of each part.

b—The mediating-method combines the advantages of the whole and the part methods and avoids their respective disadvantages.

6. The Distributions of Repetitions in Memorizing—"Jost's Law"

Another important factor in economical learning is that of the distribution or concentration of the repetitions. Is it more advantageous to learn the whole material at one sitting or to spread the repetitions over several sittings? In an attempt to answer this question several interesting experiments have been performed.

Ebbinghaus (5) used series of nonsense syllables, and found that when the repetitions were distributed over three days, each series was learned in thirty-eight repetitions, while learning a series at a single sitting required sixty-eight repetitions. It does not appear from this experiment, however, what the effect was upon the factor of retention.

A. Jost (3) investigated this problem more in detail. His primary object was to determine the influence of the distribution of repetitions upon the permanence and accuracy of retention. In one case he employed thirty consecutive repetitions in the learning of a series of syllables; in another case, upon a similar series, he employed ten repetitions on each of three successive days. The accuracy of retention was tested within twenty-four hours after the completion of the learning. The results demonstrated that the syllables learned with distributed repetitions were retained better than those learned with the same number of accumulated repetitions.

After several other experiments which gave similar results, he enunciated his famous "Law of the Age of Associations," known since as "Jost's Law." This states (3, p. 157): "When two associations are of like strength, but of unlike age, repetition increases the strength of the older more than of the younger associations. When two associations are of equal strength, but unlike age, the younger fades more rapidly than the older." Stating this more concretely: If I have learned two poems equally well, one having been learned some time before the other, a given number of repetitions will fix the first poem in my mind more firmly than the second. Also a month from now I shall be better able to recall the poem learned first (3).

Meumann (10, p. 267) repeated Jost's experiments, and found his conclusions generally correct. With smaller and easier material, however, he found it was better to accumulate the repetitions until memorization was complete.

D. O. Lyon (9) also performed several experiments in this connection. His subject was himself, and his material was nonsense-syllables, poetry, digits, and prose. His experiments extended over a period of fifteen months. He used two methods of learning: the "continuous" method by which all the material was learned at one sitting; and the "once-per-day" method by which he repeated his learning once every day. For example, on May 1, 1908, he memorized eight nonsense syllables, keeping a record of the time spent. On the evening of the same day he memorized a four-line stanza of poetry. On May 4th a similar set of nonsense-syllables was read once, and then laid aside for re-reading the next morning. On the evening of May 4th a four-line stanza of poetry, similar to the one learned on May 1st, was read through once. Later he increased the length of the series and the number of the stanzas. He guarded his experiment from error by performing no other memory work during this period, by reading no other nonsense syllables or poetry.

After an excellent graphic presentation of his results, he concludes: 1—by the "once-per-day" method a long passage or set of nonsense syllables is learned in nearly the same number of days as a short passage or set of syllables. 2—In so far as poetry and prose are concerned, one method is as economical as the other if we consider only the time spent; if we consider the tenacity of the impression the "once-per-day" method is far superior. 3—In the case of nonsense material and digits there is considerable saving of time by the "once-per-day" method.

Jost's Law is of great pedagogical significance. When the learner has extensive material to learn, he must not attempt to master it by accumulating the repetitions at one sitting. The repetitions must be distributed as widely as possible. It may be objected that distributing the repetitions results in a wasting of time and energy, because the "warming-up" process, necessary at the beginning of a task must be often repeated. While we must admit this shortcoming, we must remember that economy of time and energy are not the sole factors in economical memorization. What we desire above all is accuracy and permanence of retention, and this can be obtained only by distributing the repetitions. The fact that the learner can reproduce a certain amount of material immediately after learning is no guarantee that he will be able to retain it permanently and accurately. Experiments have

proved just the contrary. It is only when the learning has been extended over a considerable time, and the associations have had an opportunity to become fixed, that we may expect reliability in retention (3, p. 158). An additional advantage of distributed learning lies in the fact that it lessens fatigue.

7. The Relation Between Length of Material and Difficulty in Memorization

We come now to the discussion of the relation that exists between length of material and difficulty in memorization.

In this field also, Ebbinghaus (5) was a pioneer. He performed many experiments with nonsense syllables and then formulated the following law: "Difficulty in memorization does not increase in direct proportion with increase in the amount of material, but larger groups or greater masses of material require a disproportionately greater number of repetitions" (10, p. 275).

This conclusion has been disputed by Meumann, Radosavljevich, and others. In an excellent article by D. O. Lyon (9) the data of several experiments on this point are presented.

Relation Between Length of Material and Difficulty in Memorization

Table C		Table D		Table E		Table F		Table G	
Meumann and Radosavljevich		Ebbinghaus		Henmon		Henmon		D. O. Lyon	
Self as subject		Self as subject		Self as subject		Average of 3 expt's on 1 subject		Average of 1 expt. on 14[4] subjects	
No. of Syl.	No. of Rep.	No. of Syl.	No. of Rep.	No. of Syl.	No. of Rep.	No. of Syl.	No. of Rep.	No. of Syl.	No. of Rep.
8	5	7	1	..	..	..	..	..	...
..	..	..	..	10	7	10	13	10	144
12	10	12	17	12	8	12	14	20	138
..	..	..	..	14	8	14	15	..	...
16	17	16	30	16	9	16	15	..	...
18	21	..	..	18	11	18	16	..	...
..	..	..	..	20	14	20	19	..	...
24	30	24	44	24	13	24	16	..	...
..	..	36	55	30	20	30	26	40	174

According to this table, we see that in the experiments of Ebbinghaus there is a relative increase in number of repetitions with the increase in number of syllables. According to Meumann there is a relative decrease, a conclusion borne out by the other experiments.

Henmon also experimented with meaningful material, using stanzas of "In Memoriam." He used three subjects. His results follow:

		Number of Repetitions		
Stanzas	Words	*H*	*D*	*P*
1	28	3	3	4
2	56	5	6	7
3	84	6	9	10
4	112	7	11	12
5	140	9	14	14

D. O. Lyon likewise experimented with poetry of the kind of "The Ancient Mariner," obtaining the following results:

		Number of Repetitions	
Stanzas	Words	*G*	*M*
2	60	7	5
5	150	17	14
10	300	19	16
25	750	22	16
50	1500	30	23

Henmon also performed an experiment, using prose from the essays of Huxley and of Matthew Arnold. The following were his results:

No. of Words	No. of Repetitions	Approximate Time
100	6.4	3.2 min.
200	7.3	7.3 min.
300	7.0	10.5 min.

The foregoing experiments demonstrate that the conclusion of Ebbinghaus is not sound, and that, on the contrary, we find a relative decrease in expenditure of energy with increase in the amount of learning material. With unpracticed learners Ebbinghaus' conclusion has more validity (10, p. 275), but with practiced learners it is found that a little more work added to a task does not demand the same expenditure of energy as if the added work had to be done by itself. Meumann's explanation (10, p. 275) is that proper orientation and adaptation is already established and the additional material benefits thereby.

8. The Influence of Re-learning upon Forgetting

In our investigation of retention as one of the factors in economical learning, the question naturally arises: What is the relation between permanent retention and re-learning; in other words, What influence does re-learning exert upon the process of forgetting?

We again find in Ebbinghaus (5) an attempt to solve this problem. His subject was himself; his material was nonsense syllables. His procedure follows: He memorized many series of nonsense syllables, thirteen in each series. He usually learned eight series in succession. Each series was learned until one perfect recitation was possible. Then it was re-learned after intervals of twenty minutes, one hour, and thirty-one days. At each re-learning he recorded the time expended and the time saved, and employed these as the measure of forgetting up to that point.

His results indicated that forgetting is rapid at first, and then proceeds more and more slowly. The loss at the end of one hour was one-half; at the end of nine hours about two-thirds; at the end of six days it was three-fourths; and at the end of one month it was four-fifths. From his results Ebbinghaus plotted his famous Curve of Forgetting: "Forgetting progresses not in direct proportion to the time, but in proportion to the logarithm of the time."

Several objections may be made to the validity of the above investigation. In the first place, the only subject was himself, and, therefore, his range was too narrow to give him a foundation for accurate judgment. Secondly, he recorded only the time expended and the time saved. He omitted to take into account the factors of number of repetitions and tenacity of retention.

These objections would in themselves be sufficient to cast doubt upon the significance of Ebbinghaus' "curve," were his conclusions not further disturbed by the results of succeeding experimentation.

Radosavljevich repeated the experiments of Ebbinghaus, using twenty-seven subjects. He found that forgetting by no means proceeds as rapidly at the beginning as Ebbinghaus claimed. A comparison between their results taken from Meumann (10, p. 333) reveals this very clearly:

	Number of experiments performed by		Length of interval between learning and re-learning	Per cent forgotten		Difference in favor of Rados.
	Rados.	Ebb.		Rados.	Ebb.	
1	24	..	5 min.	2.5	....	.....
2	24	12	20 min. (Ebb. 19)	11.4	41.8	—30.4
3	24	16	60 min. (Ebb. 63)	29.3	55.8	—26.5
4	24	12	480 min. (Ebb. 525)	52.6	64.2	—11.6
5	47	26	1 day	32.2	66.3	—34.1
6	26	26	2 days	39.1	72.2	—33.1
7	20	26	6 days	50.7	74.6	—13.9
8	13	..	14 days	59.0	....	.....
9	8	..	21 days	62.0	....	.....
10	18	45	30 days	79.8	78.9	.9
11	12	..	120 days	97.2	....	.....
Total	240	163				

In connection with the same problem Radosavljevich made the following investigation (13, p. 328): Two series of eight lines of poetry, comprising about ninety syllables, were learned to the point of two perfect recitations. One series was re-learned after an interval of twenty minutes, the saving of time being 96 per cent. After an interval of sixty minutes the other series was re-learned, the saving here being 81 per cent.

From his experiments Radosavljevich concludes that the amount of forgetting which occurs for a time after the learner has given a first perfect recitation is almost directly proportional to the length of the elapsed interval; and that not until some time later is there a more rapid progress of forgetting; this again being followed by a gradually decreasing rate.

The deductions of Radosavljevich have been borne out by subsequent investigation, and are in accord with our every-day experience. If our memory behaved as Ebbinghaus explained, it would be very untrustworthy indeed.

9. Significant Learning—"Memorial Aids"

We are now prepared to take up the investigations in the field of significant learning, and here we must take cognizance of certain factors not present in purely mechanical memorization.

It will be readily seen that an important element in significant learning is the kind of material. This as was pointed out above may be relatively incoherent (such as synonyms, dates), or wholly coherent. In the latter case we must again subdivide into prose and poetry, and consider also whether the context is relatively abstract or concrete, and if the latter, whether it deals with description, narration, etc.

Another new element in significant learning is the "types

of memorization," by which is meant that in studying extensive material some learners remember chiefly by means of the sensory elements in the context, others by means of the logical elements.

These problems present opportunities for interesting exploration in the field of significant memorization. Yet the investigations here, perhaps on account of the complexity of the conditions, have been few and far between.

The work of Ebert, of Meumann, and of Kraemer is alone important in this field. First these investigators discovered the "types of memorization." They found that learners choose "corner-stones" of retention; that for the logical learner these consist of those portions of the context from which the rest logically depend, while for the verbal learner these "corner-stones" are chiefly the visual and auditory elements of the text, the length of words and sentences, the sounds of words, the recurrence of the same sounds, the position of the words, and the like. With the first class it was found that the logical elements were of primary importance, the verbal elements playing an auxiliary rôle, whereas with the second class the conditions were reversed, the sensory elements taking the prominent place, while the significance of the context was only of secondary importance.

In investigating this problem Ebert and Meumann used stanzas from Schiller's "Zerstörung von Orleans," and selected portions from a translation of Locke's "Essay concerning Human Understanding." Kraemer's material covered a wider field, embracing excerpts from Locke, and from Hume, passages from a narrative poem by Kleist, and selections from Mau, Schmeil, and Hertwig.

The learners in each case were asked to describe their ways of beginning to learn, and their introspective reports were supplemented by objective determinations.

The above investigations and others along the same line have led to several pedagogically significant conclusions (10, p. 297):

a—For coherent, meaningful, material the chief "memorial aid" is the understanding of the logical context. Since this is so, the teacher must use every means possible to enable the pupils to understand the material.

b—The ideas and modes of expression with which the pupil is already familiar should be the "corner-stones" upon which to erect the memory process. Therefore, the teacher should help the pupil to discover the familiar elements in the context.

c—The factors which serve as chief supports of the process

of learning are of three sorts: (a) When the material is a description of tangible objects or of concrete situations, the learner's chief aid is picturing them as concretely as possible. To this end pictures, objects, and the like are of great service. (b) When the memory material is of a narrative character, the learner's chief aid is in the temporal relations,—the sequence of events, their duration, etc. (c) When the context is of an expository or of an argumentative nature, the learner's chief aid is in the logical relations.

Besides these primary "aids," there are secondary supports to learning, such as sentence-structure, rhythm, rime, tempo; as well as certain hindrances, such as extremely long sentences, a succession of short sentences, interpolated words, fatigue, and the like. Rhythm has been found to be of great importance in the memorizing of poetry. It exercises an exhilarating effect upon the learner, and thus produces an emotional state favorable to effective learning (10, p. 309).

Kraemer was also instrumental in discovering learners' "attitudes" or modes of distributing the attention, and the influence of these "attitudes" upon the memory process and product. He found that some learners adjust themselves to the content as such, others to the form as such, and still others to both form and content together.

It was found to be disadvantageous to distribute the attention over both form and content at the same time,—because such distribution resulted in a purposeless expenditure of energy, now centering upon one thing, now upon the other, in the end producing a feeling of irritation in the learner. It is, therefore, important that the teacher should call to the pupil's attention the significance of his "attitude" and warn him against attending to form and content at the same time.

10. The Influence of the Emotional Attitude upon Memorial Activity

The conditions of economical learning which we have above indicated are mainly objective. There are, of course, many subjective conditions of learning which ought to be considered; but the scope of this presentation will not permit such consideration at length. We cannot, however, dismiss this subject without taking up the question of the influence of the learner's emotional attitude or will upon memorial activity.

It is an undisputed fact that the mind attends best to that which pleases it. If the learner is presented with material which is directly or indirectly pleasant to him, his memorial activity will be favorably stimulated; while, conversely, if the material offered has no appeal, the memory process will

be retarded. From this follows, as a corollary, the necessity of eliminating, during the learning period, all factors that will have a depressing effect upon the learner, such as lack of understanding, fear of not making progress, and the like. The teacher's duty here is to explain to the pupil the conditions of learning, the difficulties that he will have to encounter, and the means of overcoming those difficulties. This procedure will interest the pupil and induce him to exert his will to tide him over the periods of depression. In this way the efficiency of his learning will be greatly increased.

11. Formal Memory Training—Its Place in the Curriculum

In the pedagogical study of memorization the question will naturally be asked: Can memory, in general, be trained or improved, and, if it can, shall we incorporate into the school curriculum such formal memory training?

It must be borne in mind, at the outset, that the memory of school-children is very poor. Bolton (2) experimented with children under fourteen years of age and found that their memory ability was very low, and that while it improved as they grew older, this improvement depended upon age rather than upon intelligence.

In order to determine whether general memory training is possible, we must examine the work of Dearborn, Winch, Sleight, James, and Ebert and Meumann.

Dearborn (13), after experimenting with learning the English meanings of French and German words, and with stanzas of poetry, concluded that memory for all sorts of material can be markedly improved in the case of all except considerably practiced learners.

Winch (15), who tested the ability of thirty-six school-children to hold in regular order in their minds twelve consonants, found that this ability improved very rapidly with practice. He also showed, in an experiment with groups of girls averaging thirteen years of age, that practice in the learning of poetry transfers to the learning of history, and that memory for geography was also greatly improved by practice in poetry. Experimenting with boys and girls from ten to twelve years old, he found that practice in mechanical learning improved rational learning. As a result of his experiments Winch concluded (10, p. 356): "Training which is acquired through the memorizing of one sort of subject-matter may be transferred to the memorizing of other sorts of subject-matter whose nature is certainly diverse from the first."

Sleight (12) who experimented with adults and used as his material dates, nonsense syllables, prose, and poetry, found the following improvements, expressed each as a percentage of the variability of the function in question in the group in question: Dates 3; Nonsense Syllables 66; Poetry 14; Prose (literal) 35; Prose (substance) 16.

James (13), also found improvement when he measured the ability to memorize one kind of verse before and after a fixed amount of training with a different kind of verse.

Ebert and Meumann (10, p. 358), tried to measure the influence of "training series" of nonsense syllables upon the memorization of series of numbers, series of letters, other series of nonsense syllables, series of unrelated words, series of visual forms, German—Italian word-pairs, stanzas of poetry, and paragraphs of prose.

Some of their results follow:

Observers	Repetitions before practice	Repetitions after practice
(For the learning of ten nonsense syllables)		
Ba.	28	3
F.	23	2
Br.	25	4
M.	31	4
(For the learning of sixteen nonsense syllables)		
Ba.	31	5
F.	19	5
Br.	23	8
M.	34	3
(For the learning of prose)		
Ba.	36	14
Br.	26	11
F.	17	5
S.	38	10
(For visual impressions of geometric forms)		
Ba.	25	7
Br.	26	6
F.	24	7
S.	43	6

Meumann concludes (10, p. 359): "There can be no doubt that so great an amount of transferred training cannot be explained from a mere acquisition of mechanical devices which aid in memorizing; we are compelled to assume that a concomitant training of related functions of memory took place."

Since the above investigations are unanimous in demonstrating that formal memory training is possible, the question arises: Shall we introduce it into the class-room?

We are met at the outset with the objection that the school curriculum of to-day is already greatly overcrowded, and therefore any further additions are impossible. We may overcome this objection by introducing formal memory training under the following limitations: (a) the "training" material should be closely related to the work of the class-room; (b) It should be adapted to the age and the intellectual capacity of the learner.

12. Summary of Chief Pedagogical Conclusions in Memorization

With the above brief survey of the field of memorial investigation we are prepared to summarize some of the conclusions which are of significance for the teacher.

a—We have first of all seen that the general practice of leaving actual memorization to the unguided efforts of the child results in a useless expenditure of time and energy. Children are not conscious of the steps in systematic study, and, as a consequence, their efforts are often misdirected, and lead to no useful end (4). The teacher's province is then, to let the pupil into the secret; to give him an efficient technique of learning. In this way not only will there result a saving of time and energy but the emotional and volitional state of the pupil, an important consideration in all learning, will be very favorably affected.

b—We have also determined that the method of presentation depends to a great extent upon the ideational type of the learner. Therefore the teacher should discover the "types" of his pupils, and indicate to each the peculiar behavior of his type, its advantages and shortcomings, how to use the one and overcome the other.

c—In the matter of actual presentation for memorial purposes it has been shown that the "whole-method" of learning is most advantageous, if we consider the factors of time, energy, and retention; that in cases where the material is particularly difficult the "mediating-procedure" should be employed. In the same connection it has been shown that it is unwise for the learner to attempt recall until his material is thoroughly learned, because such premature testing causes confused and inaccurate associations.

d—Further we have demonstrated the necessity of distributing our memorial activity, explaining that one reproduction without error is not a guarantee of permanent reten-

tion, but that in order to obtain such retention we must allow mechanical, distributed, repetition.

e—As part of the technique of memorization with which every pupil should be endowed, we have indicated the use of memorial "aids," conducive to speedy apprehension and accurate retention; showing that with significant material these "aids "consist primarily in a logical apprehension of the context (4). This apprehension can be indirectly effected if the teacher, while questioning the pupils in regard to a passage, should require answers in the exact words of the context (6). Pupils should also be shown the importance of their "attitudes," should be warned against distributing their attention over both form and content at once, and should be instructed to learn slowly and accurately at first, then gradually to increase the rapidity of reading and learning.

f—It has also been made clear that formal memory training is possible, and that its introduction, with certain limitations, into the school curriculum will prove of great value.

13. Problems for Future Investigation

So much for the chief pedagogical conclusions which have been derived from previous experimentation. We do not, however, believe that this field has been entirely exploited. There are to our way of thinking several important problems which are still open to investigation. These problems may be divided into primary problems and secondary problems.

Chief among the former is the question of the suitability of the school memorization material to the nature of the child. How do the so-called "memory-gems" appeal to the pupil; which does he like and which does he dislike?

In this connection it would be essential to investigate children's tastes in literature. According to Gardner (7) who took up this matter, children's literary tastes are, from literary, moral, and aesthetic points of view, very poor. Yet he showed that they are capable of improvement and modification.

In discussing the suitability of memory material to the child, we must again remember the psychological law that the mind attends with best results to that which gives it pleasure. If, therefore, we offer the child a content that appeals to him, his memorial process will be favorably affected, while if we present content that has no appeal we introduce a retarding influence.

The question now presents itself: What factors can aid us to determine the appropriateness of memorial material to the child? Two that may be suggested are: the child's age, and the child's intelligence.

Bagley (1) has determined that there are three stages in the child's apprehension of material: (a) During the transition stage, from six to eight years, the mental characteristics are not strictly rational. In this stage words have little meaning unless they are definitely associated with concrete images. (b) During the formative stage, from eight to twelve, children's interests still center largely in the objective rather than in the subjective. Concrete imagery is still essential. There is no understanding of the symbolical. (c) During the adolescent stage, there is a decided improvement in the logical faculty. The new social interests, the strong emotions and high aspirations that characterize this period make necessary an appeal to the symbolic and the ideal.

It is clear, if we admit the above characteristics in the various stages of the child's mental development, that we must carefully choose memorial material that will appeal to the child in whatever period of development he happens to be. "Memory Gems" for children in the first stage must differ materially in content and in method of presentation from those offered to children in the second and third stages. Where the content has no appeal to the child he becomes indifferent to the end in view, because it has no relation to his aptitudes and motives (16).

In this relation we must also consider the question, sometimes overlooked, as to what our aim is in having children memorize literature. Is it to stimulate their intelligence, or arouse the feelings? If our aim is to arouse the feelings and this is the primary aim of literature (6), we must choose material that abounds in vivid mental imagery; and we must so present this material that it will exercise an intense emotional appeal. To choose memory matter for the young elementary-school child because it has moral or ethical significance is to err in two directions: 1—by appealing to rational faculties which are not present; 2—by failing to recognize the true function of poetry, namely, to stimulate the imagination, and arouse the feelings.

Among the secondary problems which still require solution is the matter of class-learning versus individual learning. It is usually contended that in class-learning there is a certain social incentive, an esprit de corps, which is beneficial to the learning process. It would be interesting and instructive to determine just what relation exists between these two methods.

Again, future investigation should discover the connection between learning in school and learning at home, discussing the aiding and hindering influences in each case.

The question of visual as against auditory presentation has not yet been fully decided. Meumann (10, p. 270) suggests that some further experimentation is necessary to clear up this matter.

In conclusion, it must be admitted that the practice in literature memorization in our elementary schools is too often at variance with the conclusions which have been derived from the experimental study of memorization. A closer acquaintance on the part of teachers with the important work that has been done in this field is to be earnestly recommended.

Bibliography

1. Bagley, W. C. Educative Process. New York, Macmillan Co., 1905.
2. Bolton, T. L. Growth of Memory in School Children. *Am. Jour. Psychol.*, IV, 1892, 362-380.
3. Colvin, S. C. The Learning Process. New York, Macmillan Co., 1914.
4. Earhart, L. B. Teaching Children to Study. New York, H. Mifflin Co., 1909.
5. Ebbinghaus, H. Memory. Teachers College Publication, 1913 (translation).
6. Fairchild, A. H. R. The Teaching of Poetry in the High School. New York, H. Mifflin Co., 1914.
7. Gardner, L. N. Training Children to Read Good Literature. *Eng. J.*, IV, 1915, 248-253.
8. Kirkpatrick, E. A. An Experiment in Memorizing, etc. *Jour. Ed. Psych.*, V, 1914, 405-412.
9. Lyon, D. O. The Relation of Length of Material to Time Taken for Learning. *Jour. Ed. Psych.*, V, 1914, 1-9, 85-91.
10. Meumann, E. The Psychology of Learning. New York, Appleton, 1913.
11. Meyerhardt. Economical Learning. *Ped. Sem.*, XIII, 1906, 145-184.
12. Sleight, W. J. Memory and Formal Training. *Brit. Jour. Psych.*, IV, 386-457.
13. Thorndike, E. L. Psychology of Learning. Vol. II. New York, 1913.
14. Watt, H. J. The Economy and Training of Memory. New York, Longmans, 1909.
15. Winch, W. H. The Transfer of Improvement in Memory in School Children. *Brit. Jour. Psych.*, II, 1908, 248-293.
16. Young, S. The Modes of Learning. *Child Life*, XV, 1913, 209-213.

CONSIDERATIONS CONCERNING THE MAKING OF A SCALE FOR THE MEASUREMENT OF READING ABILITY*

By Arthur S. Otis, A. M., Stanford University

Summary.

In this article the question is raised as to what constitutes "reading ability" for purposes of measurement, a few representative examples of present "reading scales" are examined and the statements of their authors noted in order to show the diversity of conceptions regarding "reading ability." A definition of "reading ability" assumed to be the most proper is then formulated. The reading act is then analyzed in order to determine what elements or factors governing the whole reading complex constitute reading ability *per se* according to the definition. Having settled upon these, an outline of a scale is presented which is believed to test abilities closely approximating those defined as constituting the essence of reading ability. The character of an investigation necessary to perfect such a scale is suggested.

Consideration of some present reading scales.

In surveying the literature on the subject of the measurement of reading ability, one is led by the marked dissimilarity of the various so-called tests of reading ability, to ask: What is reading ability? In so far as the scales bear the title of reading scales they are evidently competing for the stamp of genuineness as the measure of that ability which is most fittingly called reading ability. From this point of view a choice must be made between them, since, as will be shown, two tests called reading tests may be found which measure abilities having almost no elements in common.

It is entirely possible from another point of view to think of each scale, regardless of its name, as measuring some ability which is well worth measuring as a component part of reading ability or an ability of which reading ability is a component part.

From either point of view, however, in order to effect a

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satisfactory solution of the problem, it will be necessary to make a careful psychological analysis both of the reading act and of the present tests, to settle upon a working definition of reading ability which is in accordance with customary usage, and to determine the degree of correspondence between that variable which we shall call reading ability and the variables which the present scales measure. A beginning may be made by examining some of the present reading tests and the statements of the authors concerning the fundamental conceptions upon which their construction was based in order to determine as far as possible just what each measures.

Thorndike (17) says (p. 1): "It is the purpose of this number of the Record to report some of the results of work toward the construction of scales for the measurement of ability to read.

. . . Any progress toward measuring how well a child can read with something of the objectivity, precision, commensurability and convenience which characterize our measurements of how tall he is, . . . would be of great help in grading, promoting, testing the value of methods of teaching and in every other case where we need to know, ourselves, and to inform others, how well an individual or a class or a school population can read."

The "scales for the measurement of the ability to read" described in the Record are respectively a *"Scale for Extent or Range of Visual Vocabulary"* and *"A Scale for Measuring the Understanding of Sentences and Paragraphs."*

The "Thorndike Reading Scale A, Visual Vocabulary" requires that the child indicate whether each of the following words is the name of a flower, animal, boy, game, or book, etc.

4. camel, samuel, kind, lily, cruel.
5. cowardly, dominoes, kangaroo, pansy, tennis.

. . . . . .

11. armadillo, ignorance, philanthropic.

Pupils are ordinarily allowed to take all the time they need for completing this test so that it is plainly, as Thorndike calls it, a "scale for measuring the ability of a pupil to know the meanings of single words seen." The general method of scoring is roughly to give credit in proportion to the number of words correctly categorized.

Thorndike's Scale Alpha, For Measuring the Understanding of Sentences, begins: (Set a) "Read this and then write the answers. Read it again as often as you need to."

"John had two brothers who were both tall. Their names were Will and Fred. John's sister who was short was named Mary. John likes Fred better than either of the others. All

of these children except Will had red hair. He had brown hair.

1. Was John's sister tall or short?
2. How many brothers had John?
3. What was his sister's name?

Set VII, Difficulty 9

Read these paragraphs and then write the answers to questions 1, 2, 3, 4, and 5. Read the paragraph again if you need to.

The most serious objection to the government ownership of railways is connected with the question of rates. Every change in rates means a change in the relative advantages of one part of the country as compared with another part of the country.

Under national ownership and management of the railways there would be a continual struggle of section with section for advantageous rates and unless the rate problem could be worked out in some simple, easily comprehended way, which would commend itself to the public at large, this struggle of section with section could scarcely fail to prove disastrous. . . .

1. What is stated as the cause that would produce sectionalism?
2. Under the present condition of ownership of railways, in what two ways does class formation occur?
3. ..... 4. ..... 5. ....."

It is plain that this is just what Thorndike calls it: "a scale for measuring the understanding of sentences." It would seem then that "reading ability" in Thorndike's conception is in the main, the ability to understand words and sentences seen. Let us compare with this the views of other writers.

Starch (16) says (p. 2): "From the practical point of view, we learn to read in order to obtain information. Obviously, then, the chief elements in reading are (1) the comprehension of the material read, (2) the speed of reading and (3) the correctness of the pronunciation. The first two are the most important so far as reading strictly is concerned, . . . We use silent rather than oral reading in practical life."

Starch uses passages of from about 100 to about 300 words. Children are allowed to read as much of a passage as possible in 30 seconds and to reproduce as much of the passage as possible in writing after the reading. The "efficiency in reading" is measured as an average between the number of words per second read and the number of words in the reproduction which correctly reproduce the thought of the passage.

Thus we see that Starch's conception of reading ability is the ability to read a certain amount of a passage in a certain time and reproduce a certain amount of it. This differs from Thorndike's conception, among other things, in introducing the consideration of a time element and the factor of reproduction.

Kelly (12) says (p. 27): "While it was realized that it would be advantageous to test separately the several elements which compose this complex ability to interpret the printed page, it seemed worth while to prepare a measure with which to determine how children compare in this complex ability, leaving for further study the determining of what constitutes the causes of the differences found."

Exercise No. 1 of 16 for 3rd, 4th, and 5th grades of the Kansas Silent Reading Test reads: "I have red, green and yellow papers in my hand. If I place the red and green papers on the chair, which color do I still have in my hand?" Each of the 16 exercises for these grades is given a "value." The child answers as many as he can in five minutes and his score is the sum of the values of those which he answers correctly in that time.

Reading ability is thus defined by Kelly as the ability to read a certain number of short paragraphs in a certain time and comprehend them to a degree at least sufficient to correctly answer certain specific questions (or execute certain commissions contingent upon certain comprehension, etc.).

Ballard (1) says (p. 153): "But comprehension is a very difficult thing to measure; and it presupposes a more rudimentary ability which is quite easy to measure—the ability to translate certain visual symbols into sounds, whether those sounds are actually produced or are merely imagined. This is the basal ability—the *sine quo non* of reading—the step which no amount of intelligence would enable the reader to dispense with. His intelligence will of course eke it out; it will enable him to anticipate coming words, to respond to the slightest cue; but ultimately his power to read is rooted in his ability to translate symbols into sound, and this fundamental ability is what I set out to measure. It is not the whole of reading but it is the basal and indispensable part and it is the part which best lends itself to exact measurement.

The test I adopted after some preliminary experiments was the following:

One Minute Reading Test

is me on at by so us an it or be to as he of in go up am if no we my ox do the and for but him are can she lot let you not was . . . done walk much loss seem went with come."

Ballard makes very plain his conception of reading ability as it should be measured. He says (p. 154): "The number of words correctly read in a minute, that is, the total number read minus the number misread—gave the score." As measured by Ballard's test therefore, reading ability is defined to be the ability to correctly pronounce a certain number of two-, three-, and four-letter words, most of which are very common, in a certain time.

These examples will suffice to show the general character and diversity of the present tests of reading ability. Thorndike's test as one extreme and Ballard's as another, are seen to have very little in common.

Considerations regarding the defining of "reading ability."

Before attempting to settle upon a scale which might most suitably be called a reading scale, let us proceed as suggested and formulate a definition of reading ability or select from the complex constituting the whole reading act that element or group of elements which we shall consider to be the essence of reading for purposes of measurement. It will be impossible to do this nicely until we have made a careful psychological analysis of the reading act, but as a help in this analysis, let us begin by saying that as a guiding principle our conception of the essence of reading ability for purposes of measurement shall be that it constitutes the essential difference between the ability of an individual who, in ordinary usage, would be said to be unable to read and that of an individual who would be said to be able to read. This statement may not seem to have advanced us appreciably toward the formulating of a definition, but as will be seen shortly, superfluous as this criterion appears to be, it seems to have been quite disregarded by some of the present makers of reading scales.

Let us see then just what constitutes the essential difference between the ability of A, say who "can read" and that of B who "cannot read," this being the "essence of reading." Suppose we consider the Kansas Silent Reading Test I, No. 2:

"Think of the thickness of the peelings of apples and oranges. Put a line around the name of the fruit having the thinner peeling.

apples oranges"

No doubt he who cannot read can "think of the thickness of the peelings of apples and oranges." Therefore this is not an essential difference between A and B—is not part of the essence of reading. However, B can discover that it "says" to think of the thickness, etc., and A cannot, therefore some element or elements in the ability to discover that it says to

think of the thickness, etc., constitutes the "essence" of reading ability. The most obvious of these elements is knowing the sounds of the letters and the ability to blend these into familiar word sounds. Presumably if A knew the sounds of the letters, he would be able, with sufficient time, to puzzle out the words as spoken words and would then be able to comprehend them as such. In one sense then he could be considered as able to read the passage. Knowing the sounds of the letters would correspond to knowing the sounds of the symbols of shorthand and, in a way, to having committed to memory the Morse Code alphabet as a beginning in the learning of reading of text in dots and dashes. Suppose we call this first step in learning to read in any symbol system: "learning the key to the symbol system."

We know, of course, that for practical purposes, there is a vast difference in reading ability between that possessed by one who has just learned the key to a symbol system and that possessed by one who has "mastered" the art of reading in those symbols. This raises the question as to what is meant by the mastery of the symbol system. When a stenographer has learned by practice to read shorthand symbols so fluently and easily that the attention need be given in only a small degree to the symbols as such and so may be devoted as completely as possible to the meanings which the symbols suggest, do we not say that he has mastered the reading of shorthand?

Now if the subject matter be so abstruse or unfamiliar to him that he cannot understand it, we do not say he cannot *read* it. Neither do we in the similar case of reading print. It will be noted in the above paragraph that nothing was said regarding the degree of comprehension. The degree to which we comprehend words (the degree to which the meanings associated with the printed word symbols are rich, complex, or abstract) is a matter of life experience. The difference between the manner in which the word, automobile, is apperceived or comprehended by him who has merely seen automobiles on the street and by him who owns one is a matter of experience with automobiles, not of experience with printed words. The degree of comprehension may vary from just knowing the sound of the word, automobile, to a whole life's experience with automobiles boiled down to a set of abstractions. Whether a reader can "get the point" of a passage or comprehend it to the extent of the ability to make some generalization or abstraction, or draw some conclusion, or execute some commission, or build some composite image, or think of the thickness of the peelings of apples and oranges, may be a matter of life experience, with no essential connection

at all with reading ability. The person who cannot read at all may be able to do all these things, if the passage be read to him, as well as he who can read.

If we were to conceive of reading ability in terms of the efficiency of the whole reading act, and degree of reading ability as the combined aspect of rate and comprehension, as ordinarily measured, then we should not only consider that a person is still learning to read who is studying philosophy, sociology, or mathematics from a book, but that one who is merely discussing these subjects is still "learning to read." Probably no one would insist upon calling shop work learning to read, yet if we do not, we ought to call a scale which measures life experience gained in the shop, or in the world of economics, or any other field, a scale for measuring the ability to read.

Definition of "reading ability."

It would seem then that reading ability, to be defined logically, must be considered as embodying in essence *only those mental processes which are concerned directly with the specific visual symbols as such.* Other mental activities involved in the total reading complex may be spoken of as "supra-reading" or the accompaniments of reading *per se.*

The analysis of the reading act.

For the purpose of securing exactness in our definition of reading ability, let us make a more careful consideration of the reading act and determine as nearly as possible the exact extent of the part played by the visual symbols as such in the comprehension of passages. While to some it may seem that in the following discussion we are going into the matter more minutely than is necessary, it has seemed better to follow our criterion to its logical outcome in the hope of discovering finally the most serviceable and significant test of "reading ability."

Probably in the reading done by most people, the corresponding auditory images are associated quite immediately with the visual symbols as seen. Just to what extent this is a necessary constituent of the act of getting the meaning of a printed passage, and to what extent only a superfluous habit acquired as the result of a mode of learning to read in the beginning, cannot be said. It is conceivable that the degree of usefulness of concomitant auditory imaging in reading is a matter depending on the type of imagery most used in thinking by the particular individual reading, and partly perhaps by the character of the subject matter. It may be said with comparative safety, however, that in most cases at least it is sufficient to translate the visual symbols into spoken

language in order to dispense with the former so far as the comprehension of the passage is concerned.

As a second type of reading act, it is conceivable that many persons well practiced in the art of reading may associate many meanings quite directly with the printed symbols. It may be that incipient auditory images of the words arise in consciousness concomitantly with the association of the elemental meanings with the visual symbols, but the auditory images would appear to be so abbreviated that in many cases it would scarcely seem that they could have been a prerequisite to the meaning association. The truth of this is suggested in the fact that some persons seem to be able to apperceive printed language meaningfully at a much more rapid rate than they can utter the sounds of the language. Huey says in this regard (p. 146): "The full inner utterance seems, then, to be suggested partly by the individual word sounds serving as cues, but the visual forms doubtless also serve directly as such cues."

Parenthetically it might be said that if meanings may be associated directly with the images of the printed words while the eye rests on these, those same meanings could be associated directly with the visual images of the symbols as retained in the memory after the eye had left the page. So that the actual visual symbols could be dispensed with if necessary as soon as they had been seen well enough to be held in the mind as symbol images. But whether or not the meanings be gotten by association with the percept of the memory image of the visual symbol, the knowledge of that specific visual symbol is necessary in either case, therefore no distinction need be made here between these two modes.

Although we have specified that "reading" (or its most essential element) shall embody only those mental activities which involve association with the specific symbols read (the associations themselves being made either with the percepts or the memory images of the visual symbols), just how far thought getting does involve familiarity with the specific visual symbols read in any particular case seems to be indeterminate, as will be shown.

Suppose we take the Kansas Silent Reading Test I, no. 1, which reads: "I have red, green, and yellow papers in my hand. If I place the red and green papers on the chair, which color do I still have in my hand?" Now it may be seen that it is not necessary to visualize the yellowness of yellow in order to comprehend the passage to the extent of answering the question satisfactorily. It is not necessary to know even that yellow is a color. It is merely necessary to know that

it is a specific attribute along with two others pertaining to certain objects. For the specific requirement of the above test the word "yellow" may be considered as having been unmistakably "read" when it has been apperceived as the symbol of an attribute, since for purposes of further assimilation required in this instance there is no further need of the image of the visual symbol. Indeed the word could be considered as having been read in this case if only translated into sound, since the attribute idea could be associated with the sound of the word "yellow."

On the other hand, if the requirement had been made: Name something which is yellow, then very likely a visualization of the color itself would have been necessary. Of course it would not have been necessary to associate the visual image of the color with that of the word while the eye rested upon it. This further comprehending of the word "yellow" could take place by association of the visual image of yellow with either the sound of the word as remembered or with the visual image of the printed word as remembered. Just which method was used in any particular case could not be said. This constitutes a logical difficulty in the definition of reading ability. If further association with the visual image of the word "yellow" be assumed to be required for more complete comprehension than merely recalling the attributeness of "yellow" then such further comprehension constitutes part of the essence of reading according to our definition. But if this further comprehending may be done by association with the sound image as remembered, then it is not part of the essence of reading. In fact if the imaging of the sound were a prerequisite to any more meaningful apperception, even than that of attributeness, then the reading was complete when the word was sounded.

It would seem therefore that some arbitrary choice of grounds must be made for specifying just what degree of comprehension or apperception of visual symbols will be assumed to mark the distinction between "reading" and "supra-reading." There are practical reasons why the association of only sound images with word percepts should not be considered as completely constituting the essence of reading. One reason is that before any thinking can be done, at least the incipient meanings which correspond to the symbols must be brought into consciousness, and though, as has been said, this may be done by association with sound images only, it is probable that in most cases it is done to a greater or less extent by association with the images of the visual symbols. A more important reason, however, why sound image association only should not be considered as completely constituting

the essence of reading according to our definition, is that we wish to put a premium on reading in which sound imaging is at a minimum, when the character of the material read is such that this would make for efficiency, which is no doubt usually the case.

As a golden mean then, it would seem best to construct our test so that, so far as words alone were concerned, that degree of comprehension or apperception which is considered as constituting the essence of reading would be such as exemplified in the apperception of "yellow" as an attribute. This is little enough so that the factor of life experience in the enrichment of meanings cannot be said to play an appreciable part; if "yellow" is apperceived to any degree capable of ordinary use, it is at least known to be an attribute. At the same time it is comprehended to a sufficient degree so that the visual symbols as such may be dispensed with—sufficient to assure us that the individual tested was familiar with the visual symbol as such. One more step is now complete in the definition of reading ability.

Necessity for measuring the rate of apperception of symbols in reading.

Returning now to the consideration of the differences between A and B in reading ability, both now being assumed to have the knowledge of the key to the symbol system, we see that after the degree of comprehension has been settled upon, a very great difference between A and B still remains in the difference with which any given degree of comprehension or apperception may be made. This difference is a very important one since it is the only difference, apart from general culture or life experience, between the court stenographer and the beginning student so far as shorthand symbol reading is concerned; or between the expert telegrapher and the novice, so far as telegraph code reading is concerned; or between a rapid novel reader and the young pupil in the reading class who has just learned the key to printed symbols, so far as the ability to read print is concerned.

The practical importance of the measurement of the rate of apperception need not be urged since, with the single exception of Thorndike's scales, all present reading scales embody the measurement of rate as an aspect of reading. It is sufficient to note that the rate of apperception of printed symbols is a manifestation of the degree of automatization of such apperception—the degree of habit formation—the effect of practice—in apperceiving the specific symbols in question, whether these be printed words, shorthand symbols, dots and dashes, or the peculiar handwriting of some individual.

The fact that it is by virtue of the familiarity with the visual symbols and groups of symbols that we gain speed in apperception is shown very well by the following experiment.

If the expression, "Once upon a time," be flashed before the eyes of a practiced reader in a tachistoscope for a twenty-fifth of a second, it may be read in that time, or at least sufficient mental processes may have taken place so that all the meaning may eventually be obtained. It can hardly be said that all of the expression was even seen in that time. The eye could not have moved during the interval. Probably not much more than the outlines at least of the outside words, were perceived; the rest was inferred, supplied from memory of the same words seen before, aided by a familiar word order. If the letters had been inverted, though in the same order and groupings, it might have taken two or three seconds to apperceive the words even as language, to which probably the meanings would have to be associated afterwards. Thus it is clear that it is the degree of familiarity with the symbols and symbols groups—the effect of repeated perceptions of these—the effect of reading practice—which constitutes the chief difference between A and B in the matter of reading ability, and if we disregard the factor of degree of language comprehension, then it constitutes all of that difference.

Phrase meanings.

Now to be sure, there is a meaning in the expression, "Once upon a time," which is an additional meaning to those of the single words taken by themselves. It is a meaning which is gotten, when the expression is first read, by a process of synthesis, but which may be considered for the practiced reader as having become reduced to a single idea or meaning, recognition of which in the word group as a whole has become automatized in the same way in which the recognition of word meanings becomes automatized. Just as one can come to be able to recognize the word, nevertheless, as a unit, though composed of parts which may stand alone as words, so the expression—in as much as—which occupies the same space could be recognized as a unit after these words had been seen habitually in this spacial relation. The difference between the apperception of the expressions "comprehensibility" and "reading ability" can hardly be said to be a qualitative one. Thus we see that except for the fact that perhaps we do not see expressions composed of several words, as expressions, as we see the words composing them, as words, there is no reason why the recognition of familiar phrases in their phrase meanings should not be automatized in exactly the same way as that of the reading of single words.

Sooner or later, however, a distinction needs to be made between word apperception and phrase or clause or sentence apperception. While the familiarity of the expression, "reading ability," may conceivably be as much a result of habit in *seeing* these words together as the familiarity of the word, "comprehensibility," probably when we come to groups of three or four words, it becomes a little more a matter of meaning inference and a little less a matter of familiarity by sight.

What has been called meaning inference may be inference based either upon a feeling for grammatical relations in the language or upon knowledge of the subject matter of the text or both. Thus the facility of apperception of the expression, "The rose is red," may be due partly to the fact that "red" as an attribute follows grammatically after "The rose is" and partly to the fact that roses are red, in addition to the fact that "rose" and "red" are often seen together.

Huey says in this regard (p. 142): "In so far as the cues from the printed page set off the recognition of phrases and sentences as wholes, they do this the more readily for the habits of sequence and expectation which exist among words according to grammatical and logical usages. . . . Our words are thoroughly organized according to these general associative habits of our language, and when any given series has occurred in our reading, the sort of words and the sentence forms that belong in sequence with these are subexcited in advance of their appearance on the page, and need but slight cues from the page to cause them to spring into the perceptual consciousness."

Since inferences both from grammatical relations and from logical or content relations, as modes of getting phrase meanings, are *meaning* inferences, and as such are independent of the specific symbols read, being identical to the reading of the same language in any symbol system, therefore they must be considered as part of comprehension or "supra-reading," and not as constituting a part of the essence of reading according to our definition.

On the other hand, so far as the facility of apperception of the phrase meaning of a phrase *is* a result of familiarity by sight with the specific phrase read, that far may phrase meaning apperception be considered as part of the "essence" of reading.

It seems highly probable that in all ordinary reading, any apperception of the meanings of clauses or sentences or any group of words ordinarily seen at one glance, or which may be habitually seen as a unit, must be considered as being

effected as a process of assimilation or of successive inferences by content or grammatical relations from shorter word group meanings by virtue of their temporal relations as sound images, or indeed, by virtue of the spacial relations of these meanings as visual images. Such apperception therefore, would not constitute part of the "essence" of reading.

We have now a very well defined criterion of what must be considered to be reading, so far as phrase meaning apperception is concerned, in order to accord with our definition. Only that phrase apperception must be considered as "reading" which is facilitated by virtue of familiarity by sight with the specific word groups composing these phrases in the specific symbols in which they are read. When the measurement of these is included with the measurement of the apperception of single words, reading ability in the aspect of practice effect will be completely measured.

Now in the first place we know that specific word groups do not occur as often as the single words composing them, unless possibly there are a few word groups such as *a priori,* of which the words composing them never or very seldom appear singly, therefore the effect of practice would not ordinarily be as great in phrase meaning apperception as in word meaning apperception. In the second place it will always be more or less a guess as to just how much the familiarity of any given phrase by sight affects the degree of facility of its apperception. And in the third place it is probably only a matter of mathematics to determine the probable number of times that phrases as such are seen intact in comparison to the number of times the words composing them are seen, which means that the practice effect in phrase apperception is very probably proportional to that of word apperception, in which case it would not be necessary to measure phrase apperception separately. A test of word-reading ability could under these circumstances be considered sufficient as a measure of "reading ability."

This conclusion must not be taken as an assumption that the amount of knowledge of grammar or the degree of ability in the making of inferences based on feeling for grammatical arrangement is not a very desirable thing to measure, as well as the hearing vocabulary, the general fund of knowledge and experience, the general intelligence, the acuity of vision, et al. Neither must it be taken as an assumption that knowledge of the grammatical relationships in the language as spoken or printed and its use as an aid in the comprehension of sentences is not absolutely essential to the attainment of the ends of reading. The point is that it is no more essential than

visual acuity or fair general intelligence and except so far as punctuation marks are concerned, it has no more intimate connection with printed discourse than these. When acquired in connection with spoken language apperception, it is available in the apperception of printed language, or in fact in the apperception of the same language in any symbol system. Therefore according to our definition it does not constitute part of "reading ability."

Just how great a degree of correlation there is between the amount of practice effect in phrase meaning apperception and the amount of practice effect in word meaning apperception is a matter which can only be determined, perhaps, by very carefully conducted experiment. Probably the nearest approach to a correct measure of phrase meaning apperception as part of "reading" could be best found by a tachistoscope experiment in which the time of exposure of phrases necessary for apperception to a degree corresponding to that set for words was measured. Even here we could not be sure that facility of phrase apperception was due wholly to familiarity with spacial arrangement and not partly to grammar and content inferences. Before such an experiment is performed it cannot be claimed, of course, that a word-reading test is all-sufficient, but the use of a word-reading test may proceed pending such an investigation with assurance of its validity at least as a measure of the most important aspect of reading ability.

The making of these fine distinctions between reading ability and ability in the feeling for grammatical relations, ability in assimilative processes, general intelligence, etc., is not merely for logical purposes. It has a distinct bearing upon the purposes of measurement of reading ability and these other abilities. If a person is low in reading efficiency, as the total ability to read a passage understandingly, it may be that his deficiency is inherent in only *some* of the factors affecting such reading efficiency. Indeed he may be deficient in only one of these factors. It may be poor visual acuity alone which retards his reading. Or it may be simply lack of knowledge of the subject matter. Or it may be partly one of these and partly a matter of intelligence. The deficiency might, in fact, conceivably lie almost wholly in a person's lack of grammatical sense, in particular cases, at least.

Suppose a person is endeavoring to understand the language of a book describing the manner of repairing an automobile. It is entirely conceivable that he may fail to understand the language for no other reason than that he cannot visualize the parts of the engine in such a way that he is able

to "know what the book is talking about." Obviously what this person needs is not more practice in reading but probably to look at the automobile. Thus while knowledge of the construction of an automobile may be absolutely necessary in this case to the proper or full comprehension of the reading matter, we see that lack of understanding the text on account of lack of this knowledge need not be called deficiency in reading ability at all. If, however, an individual's deficiency in reading ability be due to poor feeling for grammatical construction or poor power of grammatical inference while reading, his defect may be remedied by the hearing of grammatical spoken language. To be sure, it may be remedied by reading printed language (or language in any other visual symbol system) but the improvement is largely a matter of familiarity with the word arrangement of such language and not merely with printed words as such; the fact remains that probably the defect could be better remedied by hearing spoken language than by more reading. But if the difficulty lies in the unfamiliarity of the individual with the forms and images of words and phrases as visual percepts, then the remedy lies with more "reading"—more experience in seeing and apperceiving these specific symbols. Therefore we see that if reading is to be measured in a useful way it must be measured in a logical way and in a psychological way not merely "with objectivity, precision, commensurability and convenience."

While it may seem that in this discussion we have given most emphasis to the question of what element or elements of the reading complex should be called, or are most suitably called reading ability, we realize, of course, that the main issue is not so much what name we give to any of the elements or groups of elements of the reading complex as it is a matter of determining which of these are in most need of being measured for the practical purposes of education and to find reliable means of measuring these elements.

Now it is the purpose of this article to show that certain tests often spoken of as reading tests measure abilities which while essential to the reading act are nevertheless of such nature that they may be better practiced or improved in other ways than by reading; while, at the same time, that one element—automatization of the apperception of printed symbols to the first degree of meaningfulness—an ability which cannot be practiced in any other way than by reading—is yet unmeasured by any of the tests in vogue. Whether we call only that test a reading test which measures this ability is, of course, of no great moment, but that we test this ability is of very great importance, more so perhaps, for purposes

connected with the teaching of reading as such, than any of the other abilities.

Now when it comes to the making of a test which measures only that variable which constitutes the essence of reading ability as defined, we may find this to be an impossible task. The question then arises: How nearly can we approximate such a test?

Suppose we had a test of the nature of the following:

Underline each of the following words which is the name of an object—something which can be touched. Underline as many of these in a minute as you can, taking care not to underline any words which are not names of objects.

ball large coat bottle red thick box long pencil nice pen new apple cap old kind book poor cruel chair big plate collar hard proud boy soft clock blue fox mouse eye pink wheel thin good honest lamp wide brush table fat cuff lean picture little moist sheep bad rat dull hat spool tight clean rug young fork fine stove black etc.

Let us assume that these words are well within the hearing vocabulary of the pupil tested. It would be impossible perhaps to give a minute psychological description of the mental processes that would occur during the taking of this test without subjecting it to a thorough examination in which the introspections of reagents were carefully considered. Roughly speaking, however, we may say that the examinee will carry in his mind the abstract concept: object, upon seeing each word will apperceive it to a degree of meaningfulness sufficient for comparison with the concept which he holds in his mind, he will make this comparison and decide whether the two concepts are in agreement, and make the appropriate reaction accordingly. Although this may seem to involve considerable more than the mere apperception of words in their incipient meanings, it may be that such a test measures an ability from which the elements which are for our purposes unessential have been stripped to as great a degree as possible, or if not, at least to a greater degree than in the present tests.

We may at least call a scale built on this principle, "A scale for the measurement of the rate of categorization of words." The answer to the question as to what the test tests depends to a certain extent, of course, on how it is scored. Doubtless the choice of a system of scoring will be complicated by such conditions as the introduction of errors due to haste, etc. Until such time as the test can be properly examined for reliability, etc., it would be scarcely worth while to attempt to say exactly how it should be scored.

If such a test were found to give a reliable measure of the ability tested, it would have several desirable qualities as a test.

First, the degree of apperception would be standardized, being merely that required to correctly categorize each word.

In making the category very wide, no more than the first degree of meaningful apperception would be required. This would leave out of account the different degrees of fullness of meaning which the same word would suggest to different individuals.

Since the words are given singly, factors affecting the getting of sentence meanings would be also eliminated.

The test would not have the fault of the Ballard test of involving the irrelevant factor of pronunciation. Even the necessity of sound imaging would not be required but instead the more essential apperception of the incipient sense meanings of the words.

Since the exact degree of apperception required would be known in advance and could be kept in mind while taking the test, no appreciable amount of apperceiving beyond that required would need be made. This is a feature which the Kelly test lacks, since as was shown, only a small portion of the meaning of the passage read need be gotten in some cases to pass the test and it is not known which part is needed until after the test passage has been read.

Children who cannot write could be tested by it; this would enable it to be used with pupils of a wide range of ages and reduce measures to a common basis.

It would only fail as a measure of automatization of word recognition in the case of words which cannot be read at all, as in the case of the veriest beginner and here it would be a measure of the number of words that *can* be recognized.

The test could be given *en masse*, which is impossible with oral tests, and be used several times in not too close succession, probably without vitiating the results appreciably, thereby making measurement of progress easy.

The scoring could be done by "unskilled labor" in a very short time with the use of scoring forms, making the test fully comply with the requirements of objectivity, convenience, etc., as set by Thorndike.

In as much, however, as this test involves a mental activity —the making of a comparison between two concepts—the relation of which to the activities involved in reading is largely unknown, it would be necessary to eliminate the effect of this factor from our measure in some way in order to obtain a measure of the single ability in incipient meaning apperceptive

tion. Possibly this may be effected to some extent by a comparison of the results of this test with those of a test somewhat on the order of Ballard's test, in which although other extraneous factors enter, such as pronunciation, the factor of the making of comparisons is absent.

Two aspects of degree of the effect of practice in reading.

There are, of course, two aspects of the degree of practice in the recognitive process. Heretofore we have spoken as if the recognition of all printed words in the hearing vocabulary became gradually and simultaneously automatized through practice. But as a matter of fact we know that a child learning to read, or an adult for that matter, begins very early to recognize certain words as wholes. The recognition of such words as *the, and,* etc., no doubt becomes fairly well automatized before the child has become acquainted with more than a hundred printed words. So that at any stage of the acquisition of reading ability an individual may be considered as fairly well practiced in the recognition of certain words, partially practiced in the recognition of others, shading off into complete unfamiliarity with still others which are yet within the hearing vocabulary. The two aspects of degree of practice in recognition of printed words are then, first, the number of words (or proportion of the words in the hearing vocabulary) with which the reader is acquainted, as printed symbols, and second, the degree of automatization in the recognition of these words.

We should therefore endeavor to arrive at an approximate measure of what we might call the "aggregate practice effect" in reading, as conceived to be the sum of relatively large amounts of practice effect with certain common words, the lesser amounts with less common words and the zero amounts with unfamiliar words.

Suppose we consider the degree of practice effect or automatization of the recognition of words to be such a variable that the recognition of one word in half the time taken for another is considered as meaning that it was recognized with twice as great a degree of automatization. Then of a group of words of approximately equal degrees of commonness the number which can be recognized in a minute, say, will be a measure of the degree of automatization of the recognition of these words. If now we make up a number of such groups, increasing regularly in degree of commonness, we should be able to measure for any individual the degree of automatization of the recognition of words of the various degrees of commonness from the most common to the least. A very

simple way to obtain a single representative measure of the aggregate practice effect of the individual embodying a combined measure of the number of words which can be recognized and categorized and of the degree of automatization of the recognition of these, would be merely to take the sum of the words correctly categorized in all the groups in the time allowed. Thus suppose we had a reading scale composed of five groups of words of which a pupil was able to categorize correctly 50, 45, 30, 15, and 10 words respectively (errors being properly accounted for). His score would be 150. The falling off in the subsequent groups might be partly, of course, because of slower apperception of those words which were capable of being categorized and partly because of the fact that larger numbers of words were not capable of being categorized. From the point of view that both slowness of recognition and failure of recognition are manifestations of lack of practice, no distinction need be made between these two causes.

Degree of practice effect considered as relative.

There is another aspect of the degree of practice effect in reading which deserves special consideration. Our test so far is designed to measure only the absolute amount of practice effect in reading. The degree of absolute practice effect in any individual case, is however, limited by the status in other abilities. A person cannot practice in recalling the meanings of words of which he does not know the meanings. It would be a waste of time, even, for one to practice sounding printed words of which the meanings were not known. Therefore a person's reading ability will not ordinarily progress faster than his acquisition of the meanings of words—his life experience.

Now if a person can recall meanings of words in the visual symbols which he is reading to the extent to which he knows their meanings as spoken words and with the same degree of automatization as he could apperceive them as spoken language, he is for all practical purposes completely practiced in reading in those symbols.

For purposes of finding a person's relative degree of reading practice effect—the degree of its completeness for his present status in knowledge of meanings, we must devise some way to discover the proportion which the actual practice effect is of the maximum possible practice effect with such words as are in the person's hearing vocabulary.

There are a number of difficulties in the way of obtaining an exact measure of this relative practice effect. One of them

lies in the fact that we can only estimate what the maximum possible practice effect would be in any given case. Possibly for children beyond the beginning stages, it would be sufficient to find the relation of the degree of automatization of words in subsequent groups to that of words in the first group, on the assumption that if all the words in the hearing vocabulary could be recognized as rapidly as those of the first group, a fair degree of perfection would have been obtained, any individual differences in the degree of automatization in the first group being assumed to be due chiefly to differences in maturity.

Another difficulty lies in the fact that in cases of groups in which, say, only half of the words were capable of being categorized by a certain individual, it would not be known whether the scrutiny of those words which were entirely new could be made in the same time as the recognition of the known words. Therefore the degree of automatization of the recognition of the latter could not be found exactly. It is believed probable, however, that if for this purpose only those groups be considered in which at least one-half of the words were known, the average score of these groups divided by the best score made (presumable in the first group) the quotient will afford a measure of the relative degree of automatization which will be serviceable for comparing individuals. Thus, if in the case mentioned above, at least half the words were known in the first four groups; the average, 35, of the scores, 50, 45, 30, and 15, divided by the best score, 50, would give 70% as the measure of the relative degree of automatization of recognition.

It may seem that we have reverted to Thorndike's view of the measurement of reading ability in coming to the method of using a vocabulary test beginning with common and ending with uncommon words which are to be categorized. The important difference is in the mode of administering the test. The seemingly small matter of taking the *time* of categorization is what makes the difference between a scale which does measure and one which does not measure the ability to which the term "reading ability" has been shown to most suitably apply.

It is quite possible that with some modifications Thorndike's vocabulary test would serve our purposes. The words seem to be well arranged in order of commonness; possibly more refinement would be possible. One objection to the scale, however, is the fact that four categories are combined in one series. It would seem too complicated to "Look at each word. Think what it means," and "If it means a color, like

red or *blue,* write a letter c under it;" or something about number, n; or about time, t; or direction, d—this would seem too much a tax on the memory to serve as a test of speed of recognition. It is believed that the fewer the categories the better, so that all possible attention may be given to the words instead of to remembering the categories and the signs by which to denote them. Since the apperceiving of the words will be done very rapidly itself, the motions of the pen in indicating the proper category must be reduced to the very minimum. It is believed that the most fluent method for this purpose is the making of a dash under the word. This may be done while the eye is passing to the next word. It is believed better if possible to adhere to the same category throughout the testing in order to avoid confusion. Any ambiguity as to the proper category should, of course, be carefully avoided.

Suggestions with regard to the making of a scale.

In order to make a scale for the measurement of the rate of categorization of words embodying the above principles it would be necessary to select a large number of nouns (names of objects), making them as concrete as possible, in the sense that *man* is more concrete than *lawyer,* etc.; then to select a large number of other words, such as verbs or adjectives, having corresponding degrees of commonness, to intersperse in chance order between the nouns. It is believed advisable to have lists of words of at least five different degrees of commonness. Possibly more degrees could be differentiated after extended investigation had been made. Each list should be long enough to exceed what any pupil could read in one minute. This would probably require at least 100 words (50 of each kind, say) in each list. This would mean 500 words for the scale. At least two scales would be needed in order to find the reliability of the measures. We should therefore select 500 nouns and 500 other words plus some extra to allow for sorting, and submit these to a fairly large heterogeneous group of pupils to be categorized in a preliminary test, in which the time need not be taken, and the words arranged in order of familiarity according to the number of pupils who were able to correctly categorize them. From this arrangement two scales of 500 words each could be made. The reliability of the measures could then be found by giving both scales to a large heterogeneous group of pupils and determining the median difference between the two scores of each pupil, after being brought to the same basis by means of a "curve of rank relation," from which difference the prob-

able error of a single score could be found by dividing by $\sqrt{2}$.

While the writer expects to conduct an investigation necessary for the construction of a scale along the lines outlined above, it is hoped that others will see fit to supplement the work by making similar studies.

Bibliography

1. Ballard, P. B. Norms of Performance in Reading. *Jr. Exp. Ped.*, Dec., 1915, p. 153.
2. Brown, H. A. The Measurement of the Efficiency of Instruction in Reading. *El. Sch. Tea.*, June, 1914, p. 477.
3. Courtis, S. A. Standard Tests in English. *El. Sch. Tea.*, Apr., 1914, p. 374.
4. —— ——. Standards in Rates of Reading. 14th Year Book, p. 44.
5. Gray, Wm. S. Methods of Testing Reading I and II. *El. Sch. Jr.*, Jan. and Feb., 1916.
6. Huey, Ed. B. Psychology and Pedagogy of Reading. 1910.
7. Jones, R. G. Reading. Standard Vocabulary. 14th Year Book, p. 37.
8. —— ——. Standard in Mechanics of Elementary Reading. 1915. (Pamphlet.)
9. —— ——. The Jones Scale for Teaching and Testing Elementary Reading. (Sold by Rockford Printing Co., Rockford, Ill.)
10. Judd, Charles H. Reading Tests. *El. Sch. Tea.*, Apr., 1914, p. 365.
11. —— ——. Reading. 15th Year Book, p. 111.
12. Kelly, F. J. The Kansas Silent Reading Test No. 3. Studies by the Bureau of Educational Measurements and Standards.
13. —— ——. The Kansas Silent Reading Tests. *Jr. Ed. Psy.*, Feb., 1916, p. 63.
14. Oberholtzer, F. E. Testing Efficiency of Reading in the Grades. *El. Sch. Jr.*, Feb., 1915.
15. —— ——. The Effects of Efficiency Tests in Reading on a City School System. 15th Year Book, p. 138.
16. Starch, Daniel. The Measurement of Efficiency in Reading. *Jr. Ed. Psy.*, Jan., 1915, p. 1.
17. Thorndike, Ed. L. The Measurement of Ability in Reading. *Tea. Col. Rec.*, Sept., 1914.
18. —— ——. The Measurement of Ability in Reading. *Tea. Col. Rec.*, Nov., 1915, Jan., 1916.
19. Waldo, Kate Douglas. Tests in Reading in the Sycamore Schools. *El. Sch. Jr.*, Jan., 1915.

A QUESTIONNAIRE STUDY OF SOME OF THE EFFECTS OF SOCIAL RESTRICTIONS ON THE AMERICAN GIRL

By Iva Lowther Peters, A. M.

Modern sex *mores* are produced from two conflicting currents of thought; that women are dangerous and to be shunned, and that they are lovely and worthy of reverence and worship. The conflict of these currents is shown in many of our civil arrangements and religious observances, in our literature and in our education. According to one set of beliefs woman might put the knowledge she received in her education to some bad use which would eventually bring about that oft-threatened result, the downfall of society. According to the other set of beliefs education might destroy that lovely, elusive quality of charm. That woman has charm is more or less reluctantly admitted even by those who look upon the source of her charm as evil, and inimical to the happiness and welfare of her friend and enemy, man.

As woman's education has stopped earlier, so have her activities been circumscribed. The hold of the home has been strong. At the time woman has tended the hearth fire, she has kept the traditions of the elders. Their fears are hers; their hopes, their limitations. Her behavior responds to these limitations by an excessive and scrupulous concern for the proprieties, which not only circumscribes her physical life but limits her field of attention and her mental interests. She is a faithful follower, even a stickler, for prevalent standards, viewing their violation with fear. In the violation of social conventions she sees the downfall of her house, with what it holds of comfort, safety, and protection.

It is quite possible that the hedging-in process which restricts the lives of girls in middle-class families may have been at various stages a conscious social process; that the prohibitions were pragmatic rules laid down by those to whom the social proprieties were advantageous. The class which performs an established social rite holds a "vital vested interest." The fact remains, however, that after a social habit, or custom, has become established, the reasons for its existence tend to be forgotten; while injunction to do, or not to do, remains in force, enhanced and hallowed by time.

In consequence, these restrictions, enforced by "an infinite plus of awfulness" to the violator, take on much of the character of the earlier taboos, of which Robertson Smith said, that the ancient woman was not bound to understand them, but was not at liberty to criticise.

Custom requires that we shall behave in a certain fixed and specified way. It calls for behavior that is standardized, socialized, moralized. Against this sometimes intolerable imposition of usage nature occasionally cries out and denounces conventions. But this outcry marks an age of self-consciousness. It is not strictly correct to say that beliefs and practices are "imposed on" the individual. Their power is not perceived. Its dominance of any social group is called by psychologists "herd-suggestion." The heretic and innovator alone are conscious of the full weight of that collective feeling which sanctions herd-conduct. The one who conforms is likely to be no more conscious of it than is a fish of the water. But let him, if he can, isolate the emotional element in his state of mind when he sees a breach of custom which he himself may not look upon as bad or harmful. Then he may be able to detect in himself the emotion communicated by feeling diffused through the group of which by training he is part. These positive laws of conduct, as to what shall or shall not be done, were enforced by group emotion because they were supposed to correspond to practical interests believed to be important for the existence or well-being of the group. Popularly, what everybody says must be true; what everybody does must be the right thing to do. There are many cases where even educated persons can hardly be brought to see that because men hold an opinion or conform to a custom is not a reason why they should. "No marked decrease in the force of traditional elements can be found in our activities. These are almost as much controlled by custom among ourselves as they are among primitive men. . . . Tradition manifests itself in an action performed by the individual. The more frequently this action is repeated, the more firmly it will become established, and the less will be the conscious equivalent accompanying the action; so that customary actions which are of very frequent repetition become entirely unconscious. Hand in hand with that decrease of consciousness goes an increase in the emotional value of the omission of such activities, and still more of the performance of actions contrary to custom." [Boas, Franz: Journal of American Folk-Lore, vol. xiv, pp. 1-11.]

It is a matter of awe and wonderment to one who becomes conscious of how little we are ourselves and how much we are what society has made us, to reflect that the hopes and

fears of young lives flow in such deep worn channels of standards, codes, and tastes shaped without reference to the personal happiness of the individual. We have in this generation reached sufficient social self-consciousness to realize that many of our ceremonial forms put the emphasis in wrong places. But whatever liberty means it does not mean emancipation from the societal environment. It must instead be more inclusive, more tolerant, of behavior growing out of the modification of the human being to change in environment.

Modern life is hard, in many respects increasingly so, as the young girl approaches maturity. Home, school, church, inadequately recognize and provide for her nature and her needs. To these great social institutions her inner life is undiscovered country. "Subjection and seclusion have probably stereotyped the feminine characteristic of timidity, forming a more or less constant attitude of dread."[1] In so far as this attitude of dread represses normal functioning and provides no other outlet for the repressed feeling it is a probable cause of duplicity. Timidity in woman is a gratification to the self-regarding instinct of man, and probably aids in gaining her a mate. Because of its presence in her the male becomes courageous and protective. Toward the timid one his pugnacity is normally allayed. But there is a dark side to the picture; under abnormal conditions this timidity may prove a stimulus to cruelty. When it becomes a state of chronic dread, or passive fear, the inability to function develops a state of "baulked disposition," from which it is practically impossible to escape without the aid of a strong outside stimulus. At a period when all the problems of life are presenting themselves to the newly grown-up girl, when she often has just enough knowledge to distrust the power of others to solve her problems for her, reticences resultant on fear and long repression shut in her soul so completely that one able and willing to help her remains powerless to do so, not knowing what would be appropriate suggestion. The days and years of early womanhood, with hours crowded to overflowing with conventional activities, betray her. Subtle pressures tighten about her. Only rarely, however, does overpressure convey to her consciousness the suggestion that her world is narrowing instead of widening. Although she feels the pressure, she does not consciously relate it to the restlessness of soul and spirit which she has been taught is either "growing pains" or a part of the general and inevitable misery of life. When we have finally rid ourselves of the primitive terror of what would happen if our social bonds were loosened by an increase of knowledge,

[1] Crawley, A. E., *Journal of the Anthropological Inst.*, xxiv, p. 118.

then at last perhaps we shall know whether it is necessary that early womanhood should be so full of sudden freaks and eccentricities, intensities and secrecies, which in their outbreaks are the despair and puzzle of parent, physician, and teacher.

A study made of three hundred and fifty American girls who have been in the classes of the writer during the past four years has led her to the tentative conclusion that many of the traits of the girl which cause anxiety to those who believe in a future of increasing power for woman are the result of an over-emphasis on sex differentiations of knowledge and activity which are no longer of social importance. Originally a social recognition of biological differences, these limitations have taken on the form of taboo; that is, the phenomena observed are psychologically like those which ethnologists call by that name. It is sufficient for the purpose of this paper to repeat that the term taboo as here employed means an inner feeling of compulsion which demands that a given thing shall or shall not be done. Non-obedience is felt to involve some serious, perhaps "awful," penalty.

The effect of taboo and convention upon girls began to interest the writer as she listened to discussions in social science classes of questions which in one form or other attacked such problems as these: What influences make for progress? Which threaten to check it, or to undo what has already been accomplished?

It was the students themselves who again and again suggested that there was a striking parallelism between primitive life and our own; and that the development of a higher type of personality demands that the limitations of social life shall not act as a drag on the growing spirit.

The questions which finally emerged were these: Do standards and customs of long standing, many of which have a strong aesthetic appeal, unduly repress the girl of early maturity? Do they so far repress her as to create conditions affecting her physical life and her true value to society? is it possible that under present conditions new taboos are operating without any realization of their importance by either the girls themselves, or their parents and teachers?

The phenomena observed were the reactions of these well-bred girls, ranging in age from seventeen to twenty-one years, to the new, the strange, and the different. The writer's personal observation of girls of this grade of maturity confirms the statements of Dr. G. Stanley Hall upon motor reactions. At this age, the small accessory muscles of hand, tongue, face, and articulatory organs may almost be called organs of thought. "Psychic activity constantly changes the tension

of these muscles, which are liable to disorders if excited or fatigued." [Hall, G. Stanley: Adolescence, vol. 1, p. 150.] These reactions plainly indicated that states of mind, sentiments, immediate reactions which faded quickly showed the presence of fear, dread, even physical disgust at contact with the different. The resultant avoidance of contact with what is strange, it is evident, cuts off from relations of friendship and love all those who in their behavior are different, and creates a social problem much more difficult than a study of economic differences could ever raise.

In connection with the direct observation of girls with whom the writer was in personal contact, a questionnaire was issued with the purpose of seeking what support could be found for her own tentative conclusions. The questionnaire was accompanied by this letter:

DEAR SIR:

I am taking the liberty to send you a list of questions I have prepared with a view to continuing a study in which I have been engaged for several years. This study was undertaken in the hope that I might get at the root of some of our discouragements in the education of young girls between the ages of seventeen and twenty-one years. I do not profess that answers to the enclosed questions will give an authoritative solution, but it is my hope that the answers may prove suggestive for further study.

As you see, the answers are simple; Yes, or No. But if you have any information to add, it will be much appreciated.

The questions, asked in five groups, and the results, were as follows:[1]

GROUP I

	Yes	No	Doubtful	Blank	Total
(1) Do you recall within the range of your own experience specific cases in which violations of the current code of "good manners," such as tipping the hat, failing to let a lady precede, and the like, have excluded persons from your society and that of others who hold your own standards of "good form?"	68	31	10	6	115
(2) Have you heard from others of specific cases in which the exclusion above suggested has taken place?	67	34	8	6	115

[1] The Doubt papers included such answers as these:

1. Yes and No.

2. I know of cases which would seem to be "specific cases," but I am doubtful of the cause.

3. So many factors were at work in the cases I recall that I hesitate to say yes.

The Blanks were too scattered to admit of explanation except in the case of the second question of the fifth group.

(3) Do you know of specific cases in which ignorance of or failure to observe the code of good manners has injured a young man's or woman's chances of marriage?	64	43	5	3	115
(4) Do you know of specific instances in which the violation of the social code as to manners at table (use of knife and fork, etc.) has excluded persons from "society?"	56	42	9	8	115
(5) Do you know of specific cases in which violation of the current code of table manners has interfered with the desirability of a person as prospective husband or wife; that is, has influenced "societal selection?"	51	49	8	7	115

GROUP II

	Yes	No	Doubtful	Blank	Total
(1) Within the range of your own experience and observation have you known of specific cases in which it has been considered "not nice" for young girls (17-21) to acquire or desire accurate knowledge of scientific facts (other than matters of sex)?	55	48	5	7	115
(2) Do you know of cases in which the imparting of, or the stimulation of a desire for such knowledge as that suggested in the previous question was classed as immoral, or as subversive of the girl's best interests?	42	60	3	10	115
(3) Do you know of specific cases in which the lack of interest in school work was the result of a limitation of the field of knowledge by social restrictions?	40	58	7	10	115

GROUP III

	Yes	No	Doubtful	Blank	Total
(1) Do you know of specific cases in which girls (17-21) refused to study intensively because knowledge might lessen their charm or social desirability?	64	40	4	7	115
(2) Do you know of specific cases in which girls believed that through the acquisition of knowledge to a degree of efficiency they would have fewer admirers and a lessened chance to marry well?	70	33	3	9	115
(3) Do you know of cases in which the above beliefs have caused young girls to refuse to go to college?	52	51	5	7	115
(4) Do you know of specific cases in which the social and matrimonial chances of young women were unquestionably affected by the acquisition of more knowledge than the social code grants, requires, or countenances?	38	64	4	9	115

GROUP IV	Yes	No	Doubtful	Blank	Total
(1) Can you recall in your own experience cases in which the use of certain words (not grammatical errors or words classed as obscene or indecent) by persons of your acquaintance has affected your liking for them to an appreciable degree?	72	32	5	6	115
(2) Can you recall cases in which the use of words suggested above has influenced your friendly intercourse with the persons using them?	54	51	4	6	115
(3) Can you recall cases in which you have broken your acquaintance or friendship with persons who used the words suggested above?	16	88	4	7	115
(4) Do you know of specific cases in which persons of your acquaintance were influenced in their relationship with others by the use of words classed as " not nice," " improper," or in some way associated with ideas generally considered irreligious or immoral (words other than those classed as obscene or indecent?)	58	44	3	10	115
(5) Have cases come under your own observation or entered into your own life experience in which epithets applied to or permanently attached to a person have, irrespective of that person's personal attractiveness or social desirability in other respects, excluded that person from your society or that of other persons whom you know?	37	64	6	8	115
(6) Have you ever known specific cases in which the use of certain words in the title of a book or article caused that book or article to be considered of questionable propriety, without reference to the scientific quality of the work itself?	56	42	7	10	115

GROUP V	Yes	No	Doubtful	Blank	Total
(1) Do you know of specific cases in which the restriction of activities of young girls because of social usages has affected their health?	47	57	4	7	115
(2) Do you know of specific cases in which the removal of restrictions has improved health?	46	45	6	18	115
(3) Do you know of specific cases in which ignorance was the direct cause of ill-health in girls?	77	27	4	7	115
(4) Do you know of cases in which instruction improved or restored health?	70	31	3	11	115

WORDS AND WORD GROUPS UNDER TABOO

(All these are widespread)

All names of parts of the body except the arms and head:—legs, stomach, thighs, hips, belly, etc. (physiology is affecting this); names of men's and women's clothing except exterior clothing and French names (corsets, socks, chemise, drawers, etc., while "shirt" and "pants" are awful!); all words descriptive of physiological functions; words describing or suggesting physical uncleanliness, dirt, filth, filthy, nasty; all words associated with sexual functions and reproduction, sex, sexual; names of vermin; animals:—mare, bull, sow, skunk, ass, pig, hog; the word "animal"; smell, stink, slink; work (Southern); wet; hot; puddle, fiddle, fuddle (-dles in general); job (many simple monosyllabic words seem to be under suspicion of being "coarse"); hair, hairy; breast, bosom (may be used poetically), bust; words connected with the use of the mouth:—lick, spit, suck, hiss, chew; lascivious; licentious; sweat; bleed, bleeding, bloody; snort; incest; prostitute; rip; female; tickle, trickle; catty; breed, breeder; chaste, chastity, virginity; sick, sickness; hag; naked; fleshy; fat; passion, passionate; matter; instinct; ape, juice; squirt; spurt; bug; worm; crawl; squirm; squawl; pus, pussy (full of pus); slime, slimy; slit (very bad!).

In the first of the question groups support was sought as to the effects of violation of the code of manners and usages which are "good form." In the second group, information was sought as to what was the attitude of parents, guardians, and friends toward the more recent extensions of the educational curriculum into the domain of science, an extension which in many cases gives the girl a kind of knowledge which was once considered not quite "ladylike." In the third group the questions were designed to find out just how far-spread is the impression that much knowledge interferes with the young woman's charm and social desirability; and, of course, eventually with her chances for matrimony.

In the fourth group of questions an excursion was made into another field; that of tabooed words, a term applied to the limitation in the use of certain words which have acquired associations which make them *non gratae*. This inquiry has much etymological as well as social and educational significance. In this general study, it is only just begun. It is quite significant, however, that so much support of the writer's personal observations was obtained from persons who had no hint of the purpose of the questions.

The questions of Group V were of a character which may possibly better be asked and answered by specialists in the medical and psychological fields. But in many cases the physical results of social restrictions are so palpable as to come well within the province of education. In any event, their social significance is of momentous consequence. As a factor in social life the female is not unimportant. Those who look on the struggle of woman for education and expression

as the hobby of a few forget that there is "an intimate connection between every culture movement and the whole domain of culture."

Instead of sending the questions broadcast, it was decided to purify the information at its source by asking only those in a position to know something of the influences which act on young women and girls. Few men other than teachers, clergymen, and physicians, were found who had observed the phenomena. Aside from these classes, who come into a relation in which they see something of the woman nature as it is, this field is a closed one to the American man.

About two hundred copies of the questions have been issued. This number is approximate, and indicates the exact number of persons to whom they were submitted. In several cases, in response to request, from three to five sets were sent to one person for distribution.

There have been received 115 replies. The territory covered comprises all sections of the United States: California, Oregon, Washington, most of the middle western states; Louisiana, Texas, Georgia, Tennessee, and Virginia, of the southern states; the New England section; and all the Middle Atlantic states.

Among the colleges and universities one or more of whose graduates have answered the questions are, Harvard, Columbia, Cornell, Syracuse, University of Chicago, Ohio Wesleyan, Swarthmore, Vassar, Wellesley, Holyoke, Bryn Mawr, the Universities of California, Oregon, Washington, Nebraska, Kansas, and Wisconsin. It is difficult to classify the papers by geographical sections. The only conclusion so far made is that more negative answers to the second and third groups came from the middle west. But negative papers are often overruled by affirmatives from the same group. When a principal of a school answers, No, to the greater part of the questions, but two teachers and a graduate of the school answer, Yes, the presumption seems justified that the principal is not a close observer.

The Noes are not consistent. Some of them are just plain, sometimes irritable, Noes. Others are said to be a protest against the word "specific." Still others are explained as being the result of conflict in the mind of the writer as to whether the cause suggested, though present, was the real cause of the phenomenon. So that some of the negatives are, to all intents and purposes, affirmatives.

The following occupations and professions are represented among the persons who replied to the questionnaire: Teachers in public and private schools; heads of public and private schools; heads of colleges and seminaries; professors; au-

thors; lecturers; clergymen; physicians; managers and employers of women and girls; social workers; society and club women; psychologists; superintendents of hospitals; heads of gymnastic and physical education departments in the Y. W. C. A., in public and private schools, and in colleges and universities.

All the questions of the first group were answered in the affirmative by five private school and three high school teachers; two high school principals; the president of a coeducational college; an elderly woman of wide social experience, for many years a national officer in the Society of the Daughters of the American Revolution; several college instructors and professors; three business women who employ women and girls; two elderly physicians with large general practices; a woman in the government employ; a woman who for twenty years has been the head of a nurses' training school; research workers, authors, lecturers, etc. Many of these persons said they had used the papers to question others. In one case the statement was made that the answers represented the opinion of thirty persons. Here are some of the remarks made by the writers:

"Emphatically, Yes!" (to the third question in Group I).

"I know a man in my own state who lost the governorship just because he had never learned to be courteous."

"I have a young girl with me now whose mother is breaking her engagement because of the manners of the young man."

"I answer Yes because of course it would happen if one were ever thrown into social contact with persons who committed violations."

"The sons of a judge went to another state to visit an old friend of their father. When it was perceived by the daughters of the family that they used their knives awkwardly, they were not introduced."

"With cultured people, these defects in training have an injurious effect. It is taken for granted that 'bad manners' are generally accompanied by other undesirable traits."

"Your percentages on table manners will not run so high as those on your first three questions, because table manners do not vary as much as other manners, and so do not separate social sets as much as the variations in manners do. I myself have seen young girls drop men whose table manners were bad, though they had no other serious defects."

"A couple of years ago, I met a young college man. He was the plainest kind of an Englishman, though he spoke very well. He had worked his way through college, and had won all kinds of honors. We had lively discussions, and found we were interested in the same things. He was a very pleasant companion when the crowd went skating or coasting. But his manners were so lacking that I took a dislike to him, and would have refused to let him call, had not my sister remonstrated."

A college professor recalled the case of one of the most brilliant men in his class, who would have missed his election to a Greek letter society because of the way he held his fork, had it not been for the intervention of some seniors who saw the man's promise.

Two clergymen give cases of the failure of men to receive calls to influential churches because of their ignorance of the code of manners, or their absentmindedness in observance. In both cases it was emphasized that they had the other qualifications necessary.

"My life has been spent mostly in the middle and western states, where social lines are not as closely drawn as in the older states. In my travels in the south, I think I have observed stricter social regulations even than in the east. I attended a convention in Texas. I noted at the hotel that in the elevator every man removed his hat when a lady entered the car. But the men did not remove cigars from their mouths for the same reason. In our country, no one accounted respectable would smoke under similar conditions, but many would not take off their hats."

The negatives to Group I are diverse company. The head of a school gave negative answers to this group when three of her teachers and a young woman who had been for three years in the school, answered, Yes.

One man's Noes were qualified: to (1), "but I have been affected by such conditions"; to (4), "but there is no doubt of the fact. I know I should be influenced in the selection of guests"; to (5), "but I don't question the facts."

It is easy to see that these answers are so qualified as almost to amount to affirmatives, especially when these remarks are added: "The above replies should not be thrown in the scale in favor of carelessness as to good form. My negative replies are due to the lack of memory of specific instances. I have no doubt that conventional incorrectness is a social disadvantage. This conclusion is derived from comments upon bad form by people who assume to be correct. I should say that the barrier can only be crossed through extraordinary qualities of character, or the acquisition of prestige, economic or intellectual."

Another added to her Noes: "I have known some college men who had bad table manners, but they were *otherwise so estimable* that it did not affect their standing."

A very conscientious negative: "While I am answering, No, because I know of no specific instances of exclusion, it is certainly true that I have very often heard unfavorable comments on persons who do violate the code of 'good manners'."

These answers are indications that "social taboo" often excludes from the sexual choice of the marriageable girl men of a race or nationality different from her own; men reared in cruder communities of our own country; and others who have been so negligent or unfortunate as not to have received the rearing necessary to put them at ease in a circle where ceremony is felt to be of prime importance. So far as these usages make life finer, it is of the utmost importance that they be retained, and their aesthetic values be enhanced. So far as they unnecessarily interfere with range and freedom of choice in mating, and make for unnatural artificiality, it should be brought to consciousness that they serve a useful purpose, but that the purpose is not the goal to all endeavor.

Through woman's habit of conformity, she has accepted too naïvely the standards which have caused an excessive concern for uniformity. She has too often become a stickler

for standards. "The battle between the majority and the individual deviating from the norm, and striving to break down its tyranny, goes deep down into the constitution of society; the process involved is nothing less than the organic evolution of civilization." [2]

Might we relinquish some few of the advantages gained by conformity, in favor of more robust truth in speech and action, and thus try to cure women of diseased imaginations which are the natural result of false beliefs, fears, and shams?

Observance of many of our social usages implies leisure and freedom from toil. One of the more noteworthy of these is the taboo on the man whose hands are not well kept. This has a number of elements. Probably the most ancient is the association of work which soils and roughens the hands with the menial tasks of the slave. There is also the social distinction between the man who works with his hands, even though he works for himself, and is his own master, and the man who works with his brain. The most modern element in this taboo would have a comic aspect, if it were not so real. The roughened hands are associated with carelessly soiled hands, and these in turn are associated with the phobia against germs, which is very widely prevalent. Eighty-four girls out of one hundred acknowledged that rough and toil-worn hands prepossessed them against a man; but half of the number agreed that this prepossession could be more easily overcome than the prejudice aroused by bad table manners and uncouth speech.

It is quite evident that social ideals ultimately determine through marriage what elements shall combine to produce the individuals who make up succeeding generations. Given greater liberty and a more rational choice, a new kind of sex selection might appear, in both man and woman. If the ideal of economic independence for woman is to become a new mode, the woman may come to select for other important qualities than those for which she now chooses. Mental equality might come to be a factor of prime importance and aid in determining what combinations shall fuse to develop a new harmony.

The questions in Groups II and III were asked, with the hope that the attitude of those who have the supervision and guardianship of the girl might be learned. How do they regard her impulses to study? How do they regard any one who might attempt to awaken in her an interest in the "intellectual life?" To those of us who desire to extend the

[2] Mayreder, Rosa: *A Survey of the Woman Problem.* Translated by Herman Scheffauer (London, 1913), p. 75.

field of intellectual activity of the American girl, it seems both startling and alarming that fifty-five persons of intelligence and responsibility should testify to a knowledge of cases in which the acquisition of accurate scientific knowledge was considered "not nice." That so large a percentage of responses should report the observation of cases in which the imparting of knowledge or the stimulation of a desire for knowledge was considered inimical to the best interests of the girl is a matter worthy of consideration. About the same number of persons record the important fact that, to their knowledge and belief, the lack of interest in school work is the result of the limitation of the field of knowledge by restrictions which are themselves the result of a social attitude toward the girl's education. The question arises, Who is the mouthpiece of this restriction? When explanations are given, the mother's voice seems to be the voice of authority. It is she who turns her daughter toward the old paths. Two papers speak of religion as a deterrent force. Here are extracts from letters which accompanied the answers:

"I can call to mind many cases in which it was considered subversive of the girl's best interests to inspire her with a desire to get really accurate knowledge. A smattering is considered more ladylike, and quite sufficient for practical purposes."

"I have known cases where there were strong religious scruples in the family against the study of science by girls."

"I have answered, No, to the questions of Groups II and III because I did not recall specific cases. This does not argue that I am ignorant of the existence of the prejudices referred to. My own experience has been largely with the class of girls willing to take the consequences of the changes brought into their lives by education."

"A friend of mine, who lives in a small town in Missouri, reports several cases from her own group of friends, in which the imparting of overmuch knowledge, or the stimulation of the girl to a point where she would wish to know very much, would have been considered reprehensible."

"I knew of several girls at school who were bright, but failed to do well through lack of interest; probably because intellectual attainments were not in demand in their circle."

"The Virginia girls I met while visiting in their state, the summer of my freshman year in college, expressed wonder, and seemed to feel that I was worse than wasting my time in going to college. They knew so little of geography, even of their own country. One of them had a friend who had gone to Oklahoma. She seemed to think it was a city, and asked me if it was near Chicago!"

In the search for actual cases in which the beliefs suggested above have prevented girls from going to college, 52 out of 115 said they knew of specific cases; some of them said they knew of many. Let us be careful to state that in many cases this decision not to go to college is in itself the result of a process of ratiocination based on premises like these: (1) It

is not nice for young girls to acquire accurate knowledge of scientific facts; (2) It is not nice for young girls even to desire accurate knowledge of scientific facts; (3) It is not for the best interest of the girl to have imparted to her accurate knowledge of scientific facts; (4) It is not right to stimulate in her a desire for such knowledge; (5) Girls do believe that knowledge might lessen their charm; (6) They do believe it might lessen their social desirability; (7) They do believe that if they acquire knowledge and become efficient through knowledge, they will have fewer admirers, and, therefore, a lessened chance to marry well. Believing all this, and living with mothers and friends who believe it, small wonder that they decide not to run such risks! The marvel is, that so many prove adventurous enough to brave the dangers! And the dangers are not all imaginary, if we are to trust the replies. The women who took law and medical courses say that some of their friends did drop them. And 38 of the papers bear testimony that socially and matrimonially their chances were affected.

The remarks on Group III are interesting:

"I have no specific case to cite in answer to the first question in Group III, but I do believe it to be a subconscious force holding back the development of many girls, the belief that greater brain development means for a girl decreased charm, as far as the opposite sex is concerned. I myself grew up believing it."

"The slightest acquisition of knowledge must of necessity affect both one's social and matrimonial chances, since each new thought transforms one, and makes one more or less attractive. It becomes increasingly possible to make new connections, and increasingly impossible to keep on with some of the old. This seems tragic, but it is a case of keeping in the procession."

Girls often say: "I don't want to be intellectual. I'd much rather be artistic or musical."

"Isn't it the display of knowledge which makes college girls obnoxious?"

"When I started to college, my cousin, who had "come out," said to me: 'Why do you waste four years of your life?' I am now happy in my profession. She is a widow, dependent for support on her husband's relatives."

"The taboo on a college education does not hold in the middle west, although I felt it strongly in my eastern home. I was much criticized for studying law, and was warned that I should be considered socially less desirable. As a matter of fact, I was dropped from several lists."

A mother went to the principal of her daughter's school: "I want you to omit Latin from M.'s curriculum. I want her to learn the ways and things men like."

Miss A. refused to go to college: "I am not going to study four years to be an old maid. I'm going to keep myself attractive to men."

"The belief that too much knowledge will lessen her popularity is a common belief with the type of girl who aims to be fluffy."

"College boys tell me that they don't like the girl student. The giggly goose is much more popular."

"Group III seems to me to epitomize the attitude of a group we call 'prosperous'."

"I knew a group of girls in a Kentucky town who all went to finishing schools. I am as sure as one can be without direct proof that their reasons and their parents' reasons were these you mention in Group III."

"About Group III, I have answered the questions negatively. In every case I have known, a girl's refusal to apply herself to her studies has been through lack of interest, or rather, the intervention of more absorbing interests, not the least of which has been personal adornment, the making of herself personally attractive. And so, perhaps indirectly, your questions receive an affirmative reply."

The last question of the third group was an appeal to persons of maturity who had knowledge of specific cases in which the acquisition of knowledge beyond the requirements of the code did actually affect the matrimonial chances of the rash adventurers. Thirty-eight answered this question in the affirmative. The cities and states represented by these answers include such diverse localities as Boston, New York, Chicago, San Francisco, Texas, Missouri, Kentucky, Georgia, Maryland, Vermont, Kansas, and Virginia. The oldest persons among those who answered gave affirmatives to this question. The majority of the men who answered the question, answered Yes. This high percentage, coming as it does from those who are members of our most cultured classes, is a mute memorial to the strength of the taboo which has restricted the intellectual activities of the American girl, reputed to be the freest girl in all the world. Is it not quite evident that the warning still holds: "Abandon hope, all ye who enter here?" Or, at least, the warning on this basis should deter one out of every three.

A Chicago girl writes that she would have gone to college if she had thought it would help her to marry. She was afraid it would hinder her; so, as she did not care particularly for study, she gave it up.

In this case the parting of the ways between the "home woman" and the "intellectual woman" is explicitly defined. This same attitude is shown by the writer who said:

"My brother has several girl friends who have told him they thought that young women in going to college were spoiling their matrimonial chances."

We are reminded by these social attitudes that: "The progressive individual, in the case of a woman, has a twofold struggle with conformity; she has to contend with the accepted type which the ruling masculine notion has set up for womanhood, and also with the actual predominating womanly type which stands for the average of the sex as it is at the moment."

A survey of interdicts on common words may indicate to us the influence of social taboos upon language. Profane, indecent, or obscene words are not the only ones banished from use. At certain times, under certain conditions, common things cannot be called by their common names. One must refrain from mentioning them altogether, because they are rude, rough, vulgar, impolite; or they must be designated by terms or phrases socially sanctioned. In such fashion many old English words have been banished from speech, to be replaced by Latin words, or by their French equivalents.

There is an extended list of epithets which serve to exclude persons to whom the epithet becomes attached. Atheist, deist, theist, rationalist, anarchist, syndicalist, free-liver, free-thinker, all mark one as a rebel. The sting of "socialist" is weakening. It begins to look as though "feminist" might also be reclaimed.

Confirmation of the existence of the social interdict on words was sought by the questions included under Group IV. The first three questions were asked in the hope of discovering the reactions of those answering the questions to the persons violating the "word taboo." The fourth question was asked with the purpose of finding out how widely the taboo extended. It was desired to obtain from the responses words considered improper, or "not nice," or words that had paths of association connecting them with ideas irreligious or immoral. These classifications, it is to be observed, overlap each other; what is "not nice" is likely to be improper, what is improper is likely to be immoral.

The practical consequences of the use of words under interdict were sought in the last two questions of Group IV. What happens to a person who gets stamped upon his personality epithets which put him in the classes, not nice, improper, irreligious, or immoral? Will he be excluded, even though personally attractive? And what will happen to a book or article having a tabooed word in its title The lowest number of affirmative answers in the whole questionnaire, 16, was given to the third question in this group. Two persons said that the use of the words they had in mind would have debarred the users from friendship at the very beginning of acquaintance. Five of the negatives said that the use of the debarred words was only one factor among others, but admitted that the use of the tabooed words had created a prejudice which strengthened the force of the other motives for disbarment.

The other low affirmative figure in Group IV, in answer to the fifth question, applies to the force of epithets. Thirty-nine persons knew of specific cases where an epithet which

had become attached to a person excluded him from the society of others. It must be remembered that these answers come from circles which include our most cultured and liberal-minded citizens; persons of education who have traveled widely and known peoples with different standards; men and women conscious of the value of social differentiation. If among this class so many can recall specific cases in which the social attitude is unfriendly toward persons who have acquired epithets, the way of the transgressor is still hard!

This punishment extends itself to literature. It seems to be generally conceded that the English language is more carefully policed than any other. The English and American "jeune fille" is allowed more liberty than other girls, and the censorship may be in part to protect her. In so far as this protection interferes with a keen sense of values, and with artistic appreciation, it is unfortunate. It was reported by fifty-six individuals that they knew of specific cases in which the use of tabooed words in the title had caused certain books and articles to be considered of questionable propriety, irrespective of their literary quality or scientific value. Those who answered Yes to this question included all the authors, librarians, teachers of English in schools and colleges, and physicians who answered the question.

The high percentage of affirmatives to the first, second, and fourth questions of this group should warn us that among the social pitfalls in our way the best of us walk blindly, in constant danger of meeting repulsions and dislikes of which we little dream. It teaches us that an influence lies about us at which we may laugh, but which is not to be laughed at; an influence impalpable, almost irresistible. None but the strongest can withstand the force of the taboo, and they are usually too wise to challenge it.

It is quite possible that the democratic movement which means the freeing of the human spirit might in the granting of a wider and more varied life to woman release forces by which society might mend itself. Such a change might contribute to intellectual progress, even though woman might not herself have any startling or direct contribution to make. Those who argue for the biological inferiority of woman are nevertheless content that the child shall be left largely in her hands both at home and in the school.

It may become necessary to countenance change in the environing conditions of the girl, because it is possible that by her prejudices and opinions she might become a hindrance and a danger to the mental life of the nation. Moreover, with our American girls, in a few years after maturity, even in the early twenties, there is often observable a certain lassi-

tude, "germs of a rather aimless dissatisfaction with life, less interest, curiosity, and courage." We may be confronting in these conditions the greatest danger in woman's history. At last she has achieved leisure. But the leisure came before she knew how to use it. Properly to use leisure there must be a choice of interests according to endowments, and a persistent effort to mass activities in accordance with this choice; such choice implies two things: will and knowledge. "God does not change the condition of a people," said the Arabian prophet, "until they change it for themselves."

The fifth group of questions in this questionnaire was an attempt to find out what association, if any, exists between the irregularity, pettiness, ill health and general unserviceableness of many modern girls of the leisure class and the restriction of their activities by the social taboo. Does the ignorance which is the result of the limitation of her knowledge of the facts of her own nature play any part in her failures?

To the first question of Group V, 57 answered yes; to the second, 46. Under the blanks and doubts were included those who faltered because of the demand for specific cases. The definite causal relationship between ignorance and ill health seems to be indicated by the affirmatives to the third and fourth questions. This impression is further strengthened by some of the Noes to the last question, which are explained: "In the cases cited, the ignorance still exists;" or, "The health was so badly injured that it could not be restored." Among the persons who replied affirmatively to the first question, were 8 physicians; 19 educators; 6 women who have grown daughters; 7 women who as employers come in contact with large numbers of women and girls; and 4 social workers. A woman who had had twenty years experience as superintendent of a hospital, wrote in explanation of her answers to the third and fourth questions:

"In my experience, I have found that many young girls ruin their health because they are too ignorant to know how to preserve it. I have had girls enter the training school at the hospital only half well, even though without organic difficulties, because they had not been trained at home or educated at school in the first rudiments of how to live. More and more I realize the importance of instruction along these lines. The girl should be given herself to care for. I should like to tell you of cases which have come directly under my care. I am deeply interested in what you are doing, and wish you every success."

Other comments are fully as emphatic:

"It is not exactly ignorance which causes ill health, but lack of appreciation, which comes from lack of knowledge."

"I know of two cases where conformity to extreme fashion affected health."

"In the older generation, I know of many cases where the social restrictions directly affected health. It shut women in the house when they should have been out of doors."

"In my experiences at girls' summer camps, I have learned of many cases in which ignorance was a direct cause of ill health. I consider this a very important inquiry. The number of specific cases I can recall are so numerous."

"I know of hundreds of cases where the restriction of the activity of girls through social usages has affected their health." (A physical training director in a university.)

"Until girls from babyhood are taught *expression* in all wholesome and normal ways, rather than *repression* to fit them into a traditional and conventional mould, there is bound to be more or less friction, physically, mentally, morally, and socially—often accompanied by an unhealthy warping of the girl's nature."

"As a settlement worker, I know of many cases in which the social tradition among foreign families, by which the girl's activities are restricted, has had a bad effect on health."

The conclusion we are forced to draw from these replies is, that social restrictions do affect health: that the "conspiracy of silence," which is the cause of the kinds of ignorance suggested by those who answer these questions, is of danger not only to the individual affected, but through her to the group. These girls are the future mothers of the race. "We have stifled the splendid possibilities of her nature with the slavery of discipline, with contempt for her spontaneous manifestations. Man lives for the purpose of learning, loving, and producing, from his earliest years upward; it is from this that even his bones get their growth, and from this that his blood draws its vitality."[3]

We are looking for an educational environment in which work, affection, and sensations which stimulate new ideas, can be utilized to nourish the intelligence. We believe with Mme. Montessori that just as sensations of bodily pleasure are resultant on light, warmth, sunshine, food, and electricity, and stimulate the renewal of bodily tissues, thus producing health, happiness, and strength, so work, affection, and sensations which nourish the intelligence by the stimulation of new ideas, are among life's necessities. It is correct to give the names "sin" and "vice" to those things which retard normal development, and "virtue" to what is favorable. And the intellectual stimulus worthy of man is the joy he feels in the consciousness of growth.

The end to be attained in the education of the girl, we believe, is to help her to understand the social situation in which she is to find herself, and thereby to put her in a position where she will be in control of the situation as the crises of life confront her. This is a plan as yet untried, and has its perils for the existing order. The growing individualism of

[3] Montessori, Maria: *Pedagogical Anthropology*, p. 144.

women, their insistence on planning their own lives as men plan theirs, will not be at first a comfortable element to inject into the social mixture. For a long time the new way will be nothing like so comfortable as the old one was. But if we truly believed that nothing is so worthy of love and service as the body and soul and youth, and that the best test of an institution, social or educational, is how much it contributes to bring youth to the fullest possible development, we should question how far we are fulfilling this supreme test. We need a clue to the future, for both individual development and race survival, and know that we must break down what retards normal development.

SOME WESTERN IDEALS

II.—Ideals in the High School

By W. G. Bateman, University of Montana

Introduction

In an earlier article (3) were published the results of an investigation in the public schools of Missoula, Montana, upon the ideals of children. The present paper continues the work through the four years of high school.

No information seems to have been published upon the ideals of students above the grade schools. In the particular high school examined the ages ranged from fourteen to nineteen years. The three earlier ages overlap the higher limits of the grade schools so that for these years some information has been gathered and published. Darrah (6) studied groups of children in California and Minnesota, Barnes (1) in New Jersey, Chambers (5) in Pennsylvania, and Hill (8) in Tennessee. Above sixteen years of age, however, nothing seems to have been published on this subject.

Investigation

The data for this paper were obtained from the pupils in the Missoula County High School. This school serves the whole county of Missoula so that many types of student are found in its membership. The ages range from thirteen to twenty-one years but since there were but few of the younger and older children only the ages from fourteen to nineteen, inclusive, are included in this investigation. Another reason for this elimination is that the younger children are usually rather precocious and the older retarded although this is most often because of loss of time.

Many of these boys and girls come from farms while the homes of others are in regions where forestry and lumbering are the great trades. Still others live in Missoula city which has about 15,000 inhabitants and is a trade and railroad center for much of the surrounding country. The population is heterogenous but there are many French and English people from Canada, while Germany and the Scandinavian countries are strongly represented.

The information concerning ideals was obtained by having the pupils write on specially prepared papers the answers to the following questions:

1. Which person (among those you have seen or thought of, or heard of, or read about) would you most like to resemble?
2. Why?

The names of those answering were not required unless they were willing since it was felt that such omission would make the subjects less reticent and cause them to give more trustworthy replies. The questions were the same as used in previous investigations.

The plan of the work was presented to the teaching staff by the principal who understood the usual precautions to be taken against suggestions, accidental influences, fooling, etc. The papers were all written at the same time on the same day, collected at once and tabulated by the author.

For this purpose they were sorted into groups for the ages 14-19 and for sex. The ideals chosen by each group were then arranged under the headings: 1. Acquaintance, 2. Public, 3. Fiction, 4. Religion, with subheadings under each of these. Percentages were then calculated showing the proportion chosen of the above types of ideals at each age for boys, for girls, and for both sexes combined. The results are to be found in Table I, which also shows the total number of replies to be 325. The figures are in percentages and rounded off to the nearest half-unit.

TABLE I

	Sex	Age						Total
		14	15	16	17	18	19	
No. of papers	Boys	20	30	30	30	30	15	155
	Girls	20	30	45	35	30	10	170
	Both	40	60	75	65	60	25	325
Acquaintance.	Boys	10.	6.5	16.5	10.	6.5	27.	13.
	Girls	20.	13.	26.5	31.	33.	70.	32.5
	Both	15.	10.	21.5	20.5	20.	48.5	22.5
Parents	Boys	0.	0.	3.	0.	0.	13.	2.5
	Girls	5.	6.5	11.	11.5	13.	20.	11.
	Both	2.5	3.	7.	5.5	6.5	16.5	6.5
Others	Boys	10.	6.5	13.5	10.	6.5	14.	10.
	Girls	15.	6.5	15.5	19.5	20.	50.	21.5
	Both	12.5	6.5	14.5	15.	13.	32.	16.
Public	Boys	90.	93.	83.	90.	86.5	72.5	85.
	Girls	70.	73.	57.5	60.	60.	30.	60.5
	Both	80.	83.	70.5	75.	73.	51.	73.

TABLE I—*Continued*

	Sex	Age						Total
		14	15	16	17	18	19	
Historical	Boys	25.	50.	33.	33.	40.	40.	37.
	Girls	30.	53.	31.	28.5	36.5	10.	31.5
	Both	27.5	51.5	32.	31.	38.	25.	34.
Contemporary	Boys	65.	43.	50.	56.5	47.5	32.5	49.
	Girls	40.	33.	26.5	31.	24.	20.	29.
	Both	52.5	38.	38.	44.	38.	26.	39.
American	Boys	85.	90.	80.	83.	76.5	66.5	80.
	Girls	45.	73.	42.	40.	43.	20.	44.
	Both	65.	81.	61.	61.5	60.	43.	62.
Foreign	Boys	5.	3.	3.	6.5	10.	6.5	6.
	Girls	25.	13.	15.5	20.	16.5	10.	17.
	Both	15.	8.	9.	13.	13.	8.	11.5
Fiction	Boys	0.	0.	0.	0.	3.	0.	0.5
	Girls	5.	13.	13.	8.5	6.	0.	7.5
	Both	2.5	6.5	6.5	4.	4.5	0.	4.
Religion	Boys	0.	0.	0.	0.	3.	0.	0.5
	Girls	5.	0.	2.	0.	0.	0.	1.
	Both	2.5	0.	1.	0.	1.5	0.	.75
Opposite sex	Boys	0.	0.	0.	0.	3.	0.	0.5
	Girls	2.5	36.5	20.	14.	24.	10.	21.5

Discussion

Failing to Answer. Eighteen boys or 10.4% and fourteen girls or 7.6% failed to answer the questions. The following table shows the distribution according to ages.

TABLE II

FAILING TO ANSWER

Age	14	15	16	17	18	19	Total
Boys	0	1	3	6	4	4	18
Girls	0	2	4	1	4	3	14

Thus about 50% of those not replying are found in the two highest age groups. This tendency is just the reverse of that found among grade school children, among whom those in this category fell steadily from 12% at six years to 3% at fifteen. The reason for this fall seemed to be in the lack of ideas on the part of the little children. Judging by the arguments advanced by the high school pupils as reasons for not

giving a definite answer the older students suffer from a plethora of ideas rather than from too few.

Among the younger children more girls than boys fail to answer but this is reversed in the high school. Furthermore all the girls wrote something on their papers even if they named no definite ideal, but five boys wrote nothing but name and date. Six boys and four girls said simply that they had no ideas on the subject.

Boy, 19: "I have not anybody in mind just at present."
Girl, 15: "I am undecided. I don't know why."

While four girls disclaimed any desire to resemble anyone only two boys did so. This is the reverse with the younger children where more boys show such independence.

Boy, 18: "I do not want to resemble anyone particularly. I want to be original. I do not believe in setting anyone up as a model, because I have never seen a perfect specimen of humanity and do not expect to."

Girl, 19: "I have not thought of anyone whom I would like most to resemble. I want to have a personality and individuality of my own."

Girl, 16: "I have no desire to resemble any one person, but many people possess qualities which I should like to own. It would take many persons to make a character for me which I should be proud of. I do not know of any person who I have ever seen, heard of or read about that I should like to resemble. Because a person can make themselves as they would like to be. I do not believe in copying other people. They may possess qualities I have not, but I can have them if I really desire them."

Boy, 17: "No one. Because I wish to be an individual, not one of the many. I wish to show personality and individuality. The characteristics which I admire are honesty, calmness, repose, strong will, loyalty, yet not proud or haughty, nor do I admire a person without a temper, yet a person who has a temper should value it and keep it. I admire a person who is true to his convictions and stands for his rights."

Girl, 18: "I never did see anybody I would like to resemble in character. Because I think we should not look at other people as models."

A few found all real persons deficient in some respect or other and so set up imaginary ideals.

Girl, 18: "I would most like to resemble an imaginary person. I have found no one who is my ideal, but I have taken the qualities I like best, in my three girl friends, and imagined a person who had them all. She is always kind and gracious on all occasions, to everyone; fond of outdoor sports; sweet-looking but not necessarily beautiful; a very good student."

Boy, 19: "The person whom I would most like to resemble is an imaginary one. Because I know that he has the characteristics which I consider necessary to all young men to make a respectable showing in life. These characteristics run something as follows: he is honest,

just, kind, tries to overlook others' faults and set a good example to them by having few himself; he uses no foul language and has no bad habits, and he respects and admires people of these characteristics."

Some, however, take the opposite course and try to patch together an ideal.

Boy, 19: "There is no particular person I would like to resemble. Among all the people I have seen, thought of, etc., there are traits in each different one which I admire and would like to cultivate in myself, but there is no one particular person. If I have an ideal, it is wholly imaginary, made up of the good points I admire in many different people."

Boy, 17: "I have no special individual whom I would like most to resemble. I keep a constant watch, and when I see certain noble characteristics in *any* individual, I try to make him my friend and embody as much of that characteristic in myself, as possible, ignoring all of his bad characteristics. My ideal (I have thought of) is a pure, honest man, who neither smokes nor drinks, whose relations with women are of the most courteous and clean, who has an aim in life which cannot be thwarted by woman nor position, who at all times is kindly, thoughtful of everyone but himself and who holds the home sacred. In this way do I hope to grow into manhood, ever being a pure, undefiled *man*, who is never afraid at all times, to everyone, and in all places to show his record.

P. S.—I never hope to meet my ideal, but this is no reason why I cannot strive to come as close to a fancied ideal as possible."

None of those failing to answer referred to religious scruples as was the case with a number of smaller children.

In the grade schools only one paper seemed to bear evidence of having been written in a frivolous spirit but it later appeared that the chosen character, Jesse James, really was the ideal of the youthful freelance who had been found reading yellow literature and who later ran away to be a bandit. In the High School, on the other hand, six boys and five girls wrote papers which had to be discarded because of would-be-smartness. Eight of these were from one class apparently poorly controlled by the teacher, where four girls named Christy Mathewson and two others cited "The Great Stone Face because it kept its secrets to itself." One wit in naming "the king of the Cannibal Islands—know work to be done," was declared by teachers to have unconsciously shown his present aim in life. Only three of these jesters were over 16 years of age. A typical sample of such a reply is:

Boy, 16: "As far as I have progressed upon the thorny and rocky path of life; as far as I have thought or read or heard I have come to the conclusion that I should like to resemble the King of Borneo, or Jack Johnson. My reasons for choosing thus are many. In the first place I should love to exercise regal power among a barbarian tribe, for such am I, at heart, a 'barbarian.' If on the other hand I fail to resemble the King of Borneo I should like to resemble Jack Johnson for I have the barbarian instinct to cripple and mangle and tear human beings."

Acquaintance Ideals. Since this type is chosen most frequently by the younger children it has been considered the most primitive. If this be true it is of great interest to note that in this group of girls the tendency to choose such ideals increases decidedly with age from fifteen to nineteen. The boys waver somewhat between ideals from acquaintance and public characters but of the whole group only 12.8% are found in the first category in contrast to 32.4% of the girls. This agrees with the results obtained by a study of papers written by teachers examined by Barnes (1) who was surprised that women should revert to the more primitive ideals. But Chambers (5) expects just such a result owing to the fact that so many girls select male ideals, are later disappointed because of non-realization and then have nothing better to fall back upon than the acquaintance ideals which are characteristic of young children.

Both boys and girls of fourteen and fifteen in the high school select fewer ideals from the circle of relatives and friends than boys and girls of the same ages in the grammar schools, the figures being:

TABLE III

Age		14	15
Grammar schools	Boys	9.5	13.
	Girls	36.	23.
High school	Boys	10.	6.6
	Girls	20.	13.

Father and Mother. Only three boys selected the parent as ideal while eighteen girls did so. All the boys and three of the girls voted for father who thus is not so popular as mother. In the grade schools more boys (12%) registered in favor of home ideals than girls (9%). The character of the replies suggested that girls and their mothers are closer together in sympathy than fathers and sons so that perhaps the movement started to make the latter pair better acquainted has some justification in fact.

Friends. Here as elsewhere girls show greater fondness than boys for friends and also in increasing ratio with age. From the reasons given for such choice on the part of the girls come echoes of the somewhat overdone friendships characteristic of these ages.

The Teacher. The popularity of the teacher, already at low ebb in the grade schools, approaches the vanishing point

in the secondary establishment. Boys mention the principal of one of the city schools twice, the president of the university twice and two members of the university faculty, while girls mention once each three teachers in the high school and the piano instructor at the university. The reasons given for some of these answers were rather lukewarm as well while there is a suspicion that the votes for the professors were entirely complimentary.

The question arises as to whether the teacher is to blame for such a situation or whether it is simply the natural outcome of the several factors concerned. To what extent are children affected by the fact that it is in the very nature of the teacher's profession to correct, reprove and restrain? Is there a sort of natural antagonism between school children and the teachers as constituting organized authority? Is the teacher's aim to broaden minds and extend horizons only too successful? Or does the teacher really fail to exert upon students so necessary and stimulating an influence that even the latter must recognize it? Perhaps teachers are too prone to be machines and not personalities.

The following table is of interest in showing comparative results in different parts of the world. The figures are for boys and girls combined.

TABLE IV

ACQUAINTANCE IDEALS

Age	14	15	16	17	18	19
Minnesota and California	7.	7.	8.	....	....	....
New Jersey	11.	....	....	....	....	....
Pennsylvania	5.5	4.	5.	....	....	....
Tennessee	20.	....	....	....	....	....
Germany	36.	....	....	....	....	....
Montana—						
Grammar school	23.	18.	....	....	....	....
High school	15.	10.5	21.6	20.6	20.	48.5

Public Characters. Ideals expressed by persons of historic or contemporary interest are the most popular in the high school just as they are in the lower grades and more so in the former than the latter, the total percentage being 73.3% and 50.5% respectively. However, a maximum is reached at fifteen years after which the figures fall for both boys and girls but more rapidly for the latter. As was the case with younger children fewer girls select these ideals than their brothers. The next table compares these results with those of other observers, the figures being for both sexes combined.

TABLE V

PUBLIC CHARACTERS AS IDEALS

Age	14	15	16	17	18	19
Minnesota and California	82.	82.	80.	....	....	....
Pennsylvania	83.	90.	87.	....	....	....
Tennessee	57.	65.	....	....	....	....
Germany	40.	....	....	....	....	....
Montana—						
Grammar school	69.	80.5	....	....	....	....
High school	80.	89.9	70.5	75.	73.2	51.3

Historic and Contemporary Persons. The inclination towards living rather than departed heroes and heroines which was thought to be significant in the younger children is even more marked in the present group for 34% select historic characters as against 39% still alive and active. The boys have most to do with bringing about this result but with age both types of ideal are selected to about the same degree.

American and Foreign Ideals. Patriotism is decidedly shown when the American and foreign characters are compared, the figures being 62% and 11.25% respectively. But again, as was brought out in the earlier study, the girls are more fond of famous personages abroad since they outvote the boys in this respect three to one.

Persons Selected as Ideals. The following lists show the persons chosen and the number voting for each.

Boys

1. Lincoln	32	5. Goethals	8
2. Edison	19	6. Roosevelt	6
3. Wilson	12	7. Boone, Caesar, Carnegie	3
4. Washington	11		

The following were named twice:

John Burroughs, Francis Parkman, Joe Bush, E. B. Craighead, Kaiser Wilhelm II, Charlie Chaplin.

The following names appear once:

Nicola Tesla, Patrick Henry, Mayor Duncan, Wanamaker, Kit Carson, Longfellow, Franklin, Douglas, Hamilton, Rockefeller, Burbank, Ford, Dustin Farnum, Alexander the Great, Billy Sunday, Jim Jeffries, Ty Cobb, Robert Burns, Christy Mathewson, George Eliot, W. J. Bryan.

Girls

1. Lincoln	16	5. Mrs. W. Wilson, Joan of Arc	4
2. Jane Addams, Mary Pickford	12	6. Gene S. Porter, Marguerite Clark	3
3 Florence Nightingale	11		
4. F. E. Willard	6		

The following were mentioned twice:

Roosevelt, Longfellow, Maude Powell, H. B. Stowe.

The following were named once:

Washington, Wilson, Camille Urso, Mozart, Schumann, Pavlowa, Mark Twain, Queen Elizabeth, Saint Theresa, L. M. Alcott, Caesar, Clara Barton, Mary Stuart, Paderewski, Wagner, Grace Darling, John Ruskin, Marguerite Wilson, Helen Gould-Shepherd, A. F. Palmer, Robert Burns, Schumann-Heinck, David Livingstone.

This is the first American study on Ideals which fails to give Washington first place among the historic people. Such a result was not unanticipated, however, since as pointed out by Barnes, Chambers and Bateman, the first president's popularity after reaching a maximum at 9-11 diminishes decidedly with age, while Lincoln as an Ideal shows quite the opposite tendency. With the boys in this study Caesar and President Wilson are more popular than Washington, and although Lincoln takes first rank in the girls' favor the first great American receives only one vote.

Is this because in modern America the fame of the Emancipator is overshadowing that of the Liberator? Or is it, as Barnes and Chambers suggest, because we overdo Washington in the schools, cram him, so to speak, into youthful minds quite unready to perceive his true value? In this connection the results of an investigation upon the ideals of Swedish children (4) is of interest. With these children Gustavus Adolphus and Gustavus Vasa are the most popular heroes but like Washington they fail to hold their place as the children grow older. This is because they are impressed upon children at an age when they should be admiring their parents or teacher; the heroes are then over-idolized and later information can only serve to detract from first impressions. There seems little doubt that Washington, for instance, is praised out of semblance to his true character, is made too coldly perfect, too severely correct. With Lincoln it is the human qualities, sympathy, love of fun, tenderness, that become emphasized. The reaction of the children is inevitable. The author of the Swedish study, George Brandell, finding the transition age from acquaintance to public ideals to be ten, questions whether this is not too soon, although American children reach this point still earlier. More individuals are named in this group in the high school than in the lower grades.

Characters from Fiction. In the higher grades of the grammar schools interest in fictional ideals was found to be diminishing rapidly with age. This worked out to the logical end in the high school with the boys, only one of the 155 naming

a book character. Even the girls failed to support literature to the same extent as did the primary students.

The solitary boy named the hero of "The Harvester." The girls named:

Rebecca (Ivanhoe), Edna Earl (Saint Elmo) 3, Pollyanna, Maggie Tulliver, Evangeline, Eleanora (The Girl of the Limberlost) 2, Janice Meredith, Barbara Worth, Dinah (Adam Bede), Mary Ware (The Little Colonel), Ellen (Lady of the Lake), "The hero of 'His Father's Son,'" and "the heroine of 'The Crisis.'"

TABLE VI

FICTIONAL IDEALS

Age	14	15	16	17	18	19
Minnesota and California	12.	12.	....	....	....	....
Tennessee	14.	8.	....	....	....	....
Germany	15.5	....	....	....	....	....
Montana—						
Grammar schools	4.	1.	....	....	....	....
High school	2.5	6.6	6.6	4.2	5.	0.

Religious Ideals. Of the 325 children, 1 boy and 2 girls named Christ. The percentage (0.85%) is the lowest yet recorded and shows how little religious training influences the ideas of American children. While this may be related to a general decline of religious thought in society it furnishes in the minds of some observers (Chambers, Hill) an indictment of the church and Sunday school which uses the poorest methods of instruction and fails to win the co-operation of the home. In extenuation it may be claimed that the teacher see the children irregularly for less than an hour one day a week and so has little chance to impress Biblical facts compared to the public school teacher who is better equipped both mentally and materially. But in Chambers' opinion the blame lies finally with the home. Even the public schools have felt the lack of the spirit of interest and help on the part of parents and guardians who seem to slip, only too easily, their responsibilities upon the organized system of education. With the schools teaching not only the 3 R's, but accomplishments (singing, dancing), vocations, manners, citizenship, sex hygiene, as well as conducting physical examinations (dental, optical, etc.), organizing play and furnishing proper, inexpensive lunches; and with the Sunday school supposedly looking after the religious life, the average citizen sinks more or less complacently into the background of his children's lives, seemingly to feel little further responsibility beyond paying taxes, even at which we all grumble. And yet by the proper spirit of co-operation the home and it alone can put the capstone on the structure the schools endeavor to upbuild.

Choice of Opposite Sex. While in the primary schools 25% of the girls select male ideals, in the High School 21.6% are found so doing. This extends to higher age levels the falling off in this tendency noted in the previous article. The older boys practically fail to vote for women at all, a single vote for the whole sex being given to George Eliot.

Table VII shows the course of the different types of ideals for the 1,536 children studied irrespective of school status.

TABLE VII

Age	Acquaintance	Public	Fiction	Religion	Opposite sex
6.....	80.	7.	2.	2.	2.
7.....	72.	20.5	4.7	1.	3.
8.....	48.	37.	14.	1.	12.5
9.....	47.	40.	13.	0.	10.
10.....	29.	59.5	8.	3.	17.
11.....	29.	55.5	13.	2.	22.
12.....	25.	65.	7.	2.	16.5
13.....	19.5	66.5	12.	1.5	27.
14.....	19.	74.5	3.	3.	16.
15.....	14.	82.	4.	0.	22.
16.....	21.5	70.5	6.5	1.	20.
17.....	20.5	75.	4.	0.	14.
18.....	20.	73.	5.	1.5	24.
19.....	48.5	51.	0.	0.	10.
Total.....	35.5	55.5	7.0	1.5	15.5

Motivation

In every way the reasons given for choice of ideals are better expressed than in the grade schools. There is little vagueness or irrelevancy, and the facts advanced are accurate.

Failing to Answer. Four boys and one girl only failed to give a reason for their choice.

Reasons for Selecting Parents. Here fortunate parents may see themselves as their children see them.

Girl, 16: "My mother is as near my ideal as I ever expect to come across. She is kind & patient with her children. She is always thinking of them. She is generous to them. She is always working for her family. She is a Christian too. She takes active part in church work. She is a musician. She gives pleasure to her friends & her family by playing on the piano. She is a good wife too for my father loves her very much. She knows how to cook, to sew, well. She can sing and read and keep house and I don't believe there is much she can't do."

Boy, 19: "I would most like to resemble my father. My reasons are many; the most important one being that he is the person to whom I am indebted for my character, education (what little I have), physical and mental training and position among the friends of the family. Also destiny is most likely to make my resemblance such as his than any mythical character."

Girl, 18: "My mother. Because she is so patient with all of us. She is rather strict concerning all religious and moral matters also."

Boy, 19: "My father. He is a man of good judgment, broad ideas, a good thinker, honest, and yet he is just a common man."

Boy, 19: "My father. He is honest, hard working, patriotic and kind to me and my brothers and sisters. He has worked up from a laborer's position to one of comparative ease but still he does not take the ease to which he might justly deem himself entitled. He deems it his duty to go on producing wealth for himself and the nation instead of being a drone."

Girl, 15: "I should like to resemble my mother because she is always pleasant no matter what happens and she always tries to make every one happy."

Reasons for Naming Friends. The following examples about cover the reasons in this group, both usual and unusual.

Boy, 14: "Because he has the very best character. He does not chew, smoke or drink intoxicated liquors. He is well educated and does not use bad language."

Boy, 16: "He is honorable, clean, no bad habits about him; he is generous and successful. He is a good business man and has large interest in a hotel and in a large newspaper in Minnesota. He is unmarried and free to travel at his own will."

Girl, 19: "Because she is a good, christian woman, but not what people call 'goody-good,' she has a very strong character, generous, kind and noble. She is always doing some one some good and in her profession, a nurse, she shows no partiality, treates a Jap just like a white man, just as considerate of one as another. She loves nature in everyway, and also man-kind."

Girl, 18: "Because she is a perfect lady, she is intelligent, interesting, and entertaining. She is also very courteous. And last but not least she is dark and beautiful.

Girl, 16: "Because she is pretty but she isn't vain, altho' I suppose she will be when she gets older. She is smart and is really good and because I love her."

Boy, 18: "I like most to resemble him because he is noble, kind and broadminded. One of the best reasons I have is, because he is morally noble even in married life, this is the highest ideal I have."

Boy, 17: "Because of his personality. He has a funny way of talking. He is honest and is not profane. He is very kind to his family and all other persons with whom he comes in contact. He is well enough off financially and lives a happy-go-lucky life and never seems to have any cares."

Reasons for Naming Lincoln. Since Lincoln is the person most frequently mentioned in this study, it is of interest to note the basis of his popularity.

Boy, 18: "I may aim high, but a man never gets anything unless he goes after it. I would like to resemble Lincoln in many different ways. First—in honesty and integrity; as a statesman; in sound judgment and good reasoning power; in character, and ability to learn and to be able to carry on affairs of state and nation with the sound judgment that was Lincoln's ability to use."

Boy, 18: "I think would most like to resemble Abraham Lincoln, not to be a great man or President, but an honest, tender hearted, manly, upright and sympathetic man."

Boy, 19: "Best man I ever heard of."

Boy, 16: "Because he did things that amounted to something and he had a stronger character than anybody I have ever heard about."

Girl, 16: "He was honest and he didn't try to graft or anything like that. He worked for the people."

Girl, 15: "Because he was so kind to everyone and everything, even dumb animals. He could not bear to see anything in trouble. Even though he was very poor and had to work hard for what he got, he was a very great man, and did great and noble things for his country, especially the freeing of the slaves. He was a man who trusted in God, and was honest in everything he did. I think he was a very noble and god-like character all through his life, for the hard circumstances he had to go against."

Boy, 15: "Because he grew to be such popular man and trustworthy without an education in schools. He was such a manly honest man. How brave he was in his position as president. He had such good ideas of the rights of the people."

Girl, 16: "He was a model of a man. He was ambitious, truthful, smart, a good speaker and statesman, large in stature, witty and was quite a literary man."

Boy, 16: "He was a poor boy, and did not have the chance to go to school, but a little. He was a kind-hearted man and honorable. Mr. Lincoln got his education from books that he borrowed. I think it takes a pretty good man to start life poor and end in the President's office. While President he set the slaves free, which I think was a very good thing."

Reasons for Naming President Wilson.

Girl, 16: "He is a good statesman; also a great peace advocate. He does all he can to help the country."

Boy, 15: "Because he seems to be the ideal of efficiency."

Boy, 19: "He is slow to come to conclusions which may or do involve others besides himself or just a few. He is always just in his beliefs."

Boy, 17: "He has shown wonderful ability to run our government during this great European war. He has also kept us out of the war which helps the country very much."

Boy, 17: "Through the crisis of this European war he has shown wonderful tact and ability. If he had not been such a fine man we probably would be involved in this great conflict ourselves. Wilson has had many trials and tribulations; yet through it all he has shown himself a '*Master of the Situation.*' He is a great statesman and whatever party a man belongs to he cannot help having a warm spot in his heart for this great and worthy man."

Reasons for Other Historic Ideals.

Boy, 16: "Benjamin Franklin. Because he had high ideals and lived up to them. His plan of life was good and he lived up to it. If more people would do now as he did then there would be more great men. He started in poor and worked up. He was a great man serving his country in more ways than one in the time of the revolution."

Girl, 16: "Frances E. Willard. She was against the saloon traffic and she was religious; she lived a somewhat helpful life."

Girl, 16: "Grace Darling. Because she had the courage of a boy, and I wish I were a boy! ! ! ! ! "

Boy, 15: "George Washington. Because of his will power and wit and his masculine figure."

Boy, 17: "Daniel Boone. Because I like the Wilderness."

Girl, 17: "Julius Caesar. Because he always accomplished what he

undertook, he was just in his dealings, loved his friends, and died bravely."

Girl, 17: "Joan of Arc. Because she had a feeling in her that she was put on this earth to accomplish something for her country."

Boy, 15: "D. Boone. Because he was out in the wilderness and had nothing to think of only the danger of the Indians. He could hunt and fish all he wanted. There was plenty of game."

Girl, 17: "Mary Stuart. Because she was pretty and charming. Every body liked her. She was a good ruler and could win almost every body to her side."

Boy, 15: "I should like to resemble Francis Parkman. He had a very strong will power and even when he was sick he wrote books, and that shows that he had a strong will power."

Some Contemporaries.

Boy, 15: "Andrew J. Carneigue. Because he has promoted education and has given Missoula a free public library and is giving Hamilton one just at present and he is contributing much money to the forlorn Belgians and he is also a vetteran of the great civil war. As far as being in the public eye, I would not care so much about. But to be on so many honorable committees and have a chance to do so much good is what counts."

Boy, 17: "Theodore Roosevelt. Because his life was full of thrilling experiences."

Boy, 17: "Col. Goethals. From what I have read, he is a clean, honest, square *man* and a brilliant engineer."

Boy, 17: "Thomas Edison. He is the world's greatest inventor and has done more for the uplift of human comfort and for our industries than any living man."

Boy, 18: "Ex-President Roosevelt—Most interesting character of any I've read about. Ex-Pres. Roosevelt had more good influence on the United States than any other man—He is a broad minded, industrious, and the best statesman the United States ever had."

Boy, 19: "Kaisar of Germany. Because he has such a strong influence on the German people and regulates the campaiegns so well. He has a very strong character."

Girl, 16: "Theodore Roosevelt. I would like to resemble Theodore Roosevelt because he has always been my hero ever since I can remember. He stands out from all other men, with characteristics which I really cannot explain. When I saw him my highest expectations were realized. He is a man of high ideals, and possesses a very strong character. His personal appearance is also very pleasing to me. I am a girl, and have wished all my life to be a boy, and to be like Roosevelt."

Girl, 15: "I would most like to resemble Madame Pavlowa, the Russian dancer. I select this woman because she is such a wonderful dancer and as dancing is my greatest pleasure I would like to resemble her. Of course I know I couldn't but I would rather be like her than any one else in the world."

Girl, 14: "Mary Pickford. Because she is pretty and smart. She is a good actress and earns a lot of money. In the books that I have read about her she is kind and quite simple in her ways."

Girl, 16: "Jane Adams. Because she is worth while and not frivolous and silly. She has done so much for others and knows so much."

Girl, 17: "Jane Adams. Because she has done so much good in the slums in Chicago. She is kind hearted and very conscientous and industrious. Nothing is too hard for her to try. She reforms the slums and holds meeting for the poor people."

Girl, 16: "I would like most to resemble Mary Pickford. Because she is beautiful and is loved by everyone. She has a pleasant position and earns an extremely good salary. These are the most important reasons."

Ideals from Fiction and Religion. The following are typical examples of reasons for selecting ideals in these classes.

Boy, 18: "Jesus Christ. Because of his meekness, wonderful humanity, sincerity and all the qualities of greatness, while at the same time he was a human like the rest of us. At the same time it is impossible, I realize to become in any measure what he was but still I hold him above all men past or present."

Girl, 16: "I would most like to resemble our Lord. The reason for most liking to resemble Christ is because he is the only perfect person there ever was, & because he is so pure and so wonderful."

Girl, 17: "I would like to resemble Edna of St. Elmo because she had such a noble character. She was so thoughtful for others, and truthful. She made room for bad qualities in other persons; I mean, she overlooked the bad qualities. She was always striving for her own independence and; she was always striving for a high position, which she accomplished it in the end."

Girl, 16: "Janice Merideth. I was named for her."

Thus the reasons given harp constantly on the human traits of heroes and ordinary people. There is very little mention of money or other material possessions and apparently little desire for fame or position. Some wish more experience generally of a thrilling nature, a few would like a better personal appearance, others would stand in the limelight. But morality, kindness, sympathy, justice, charity, these at least are what these young people praise and claim to desire to practice.*

It is a great pleasure to thank Mr. G. A. Ketcham, principal of the Missoula County High School, for his kind co-operation in this work.

References

1. Barnes, E. A. A Type Study on Ideals. Studies in Edu., II.
2. —— ——. Children's Ideals. *Ped. Sem.*, VII, 3-12.
3. Bateman, W. G. The Ideals of Some Western Children. *Educ. Rev.*, LI, 21-39.
4. Brandell, G. A Swedish Study in Children's Ideals. *Svenskt Archiv für Pedagogik.* Abstract by A. N. Gilbertson. *Ped. Sem.*, XX, 100-106.
5. Chambers, W. G. The Evolution of Ideals. *Ped. Sem.*, X, 101-143.
6. Darrah, E. M. A Study of Children's Ideals. *Pop. Sci. Mon.*, LIII, 88-98.
7. Goddard, H. H. Ideals of a Group of German Children. *Ped. Sem.*, XIII, 208-220.
8. Hill, D. S. Comparative Study of Children's Ideals. *Ped. Sem.*, XVIII, 219-231.
9. Reymert, M. L. Zur Frage nach den Idealen des Kindes. *Zeits. f. päd. Psychol. u. exp. Pädagogik,* 1916, Heft 5/6.

* The author hopes later to print a short paper on Freshman Ideals in a University.

BOOK REVIEW

Kinderstudie, Paedologische Bladen. Published by J. Ploegsma, Zwoolle, Holland.

A Dutch periodical with the above title has appeared this year. It is published under the auspices of the Paidological Society of Amsterdam. This society was founded in 1911 by the following: Dr. G. A. M. van Wayenburg (President), Dr. J. H. Gunning, C. M. Soeters, W. H. Ten Seldam, Prof. Dr. K. Herman Bouman. The general purpose of this society is to further scientific child study in Holland by occasional public lectures, and since February of this year, also to facilitate matters through publication. Two numbers or *Afleverings* of the periodical have been issued, from which one can realize that Child Study in Holland is rapidly improving. In the February number van der Molen has a comparative study of children's drawings, discussing critically all investigations in this field from the book of the Italian art-historian Corrado Ricci (L'arte dei Bambini, 1883) through Schreuder, Sully, Kerschensteiner, and the rest up to the latest Dutch study by van Wayenburg, presented at the first Dutch National Congress for Child Study (1913). This carefully worked out and well orientated study is furnished with an efficient bibliography. In the second article of the said number von Wayenburg gives a sketch of the history of Child Study, in which he traces very briefly the new science—up to modern times—from the first works of G. Stanley Hall in America and from his pupil Dr. O. C. Chrisman, who outlined "Paidology" at the University of Jena. However, he does not fail to mention that the first American workers owe much to the general training they received from Wundt in Leipzig and from other psychologists in Berlin and Jena.

He devotes a great place to Stanley Hall, his chief works, his founding (1893) of "The National Association for the Study of Children," the fruitfulness of the great school that he inspired, etc. Earl Barnes and James Mark Baldwin are also mentioned as industrious pioneers. Van Wayenburg gives a rough outline of the work done in the chief European countries. One wishes that he had mentioned the rôle that Child Study plays in the Scandinavian countries, especially in Denmark and Sweden at the present time. Not considering this, his article, together with Meumann's (Abriss d. exp. Pädagogik) and Barnes's (The Present and Future of Child Study in America, in Studies in Education, Vol. II), may be of great help for a coming general history of Child Study. Historically setting his future "sketches" by this article, van Wayenburg in the August number deals with the periods in the child's life from birth, up to and including puberty, as he determines them to be for pedagogical and psychological studies, investigations, and discussions. The following ought to be the divisions from his point of view: 1st, 0-6 months; 2nd, 6 months-1 yr.; 3rd, 2-4 yrs.; 4th, 4-6 yrs; 5th, 6-12 yrs.; 6th, the pre-pubertal period, 12, 13, 14 yrs.; 7th puberty.

Further attention will be given these periods in the coming numbers. Besides the contributions mentioned, we find also a solid article by Dr. J. H. Gunning, in which from the discursive and paidological, as well as from the normative pedagogical point of view, he takes up the problem of influencing the will of children. He discusses the works of Ach and his followers (Hillgruber and Glässner) and pays special at-

tention to the work of A. Mayer: "Uber Einzel und Gesamtleistung des Schulkindes." He discovers that Mayer has incorrectly used his tables of results in his comparisons. Dr. Gunning rearranges this material, and obtains results which in many respects are very different, and concludes that Mayer's findings must in no way be generalized. In arithmetic, for instance, he finds (through his rearrangement) that the best results are obtained, when stress is not placed upon speed. However, in general he admits that in many cases a maximum speed is very desirable, a fact that he would like teachers to be aware of in their practice.

The "Kinderstudie" devotes a large place to references and discussion of current literature and also contains a list of the best periodicals in all countries. In this list the Swedish periodical "Arkiv för Pedagogik" (Upsala) and the publications of the Danish "Foreningen for exp. Pædagogik" (Kjöbenhavn) might well have been included.

Having gone through the two first numbers of the "Kinderstudie" one gets the general impression (not considering that the periodical at the outset must be a little programatical and historical), that it seems to point toward a real *Archiv* for child study in Holland, and that several contributions of international value may be expected through it from coöperators, placing, as they seem to do, so much stress upon the real psychological foundations of child study.

Clark University. MARTIN L. REYMERT.

BOOK NOTES

Sermons and addresses. By JOHN BASCOM, New York, G. P. Putnam's Sons, 1913. 356 p.

Things learned by living. By JOHN BASCOM. New York, G. P. Putnam's Sons, 1913. 228 p.

The two volumes above embody the lessons of a long life full of activity and rich in experience. During all the author's years at Williams College, he stimulated nearly two-score classes to better, deeper thinking and higher moral purpose, and the interruption of this period, while he was president of the University of Wisconsin, did not cause any break in his passion for philosophic thought. He tells us that the books he has published cost him over six thousand dollars, and have paid him about four thousand, which means an average sale of 1,071 copies and an aggregate circulation of 15,000 copies. Thus, as he says, "A large part of my welfare has been at my own charges," and he modestly adds that his only regret is not in the costliness but in the inadequacy of his work. The volume entitled "Things Learned by Living" is in a sense a kind of inner autobiography and seems especially intended for those who knew him personally. His formula for personal and social life, his experience concerning wealth, recreations, form of work, religion, and finally a long list of published writings, filling nearly seventeen pages, are in themselves sufficient attest of his high intellectual quality and his unremitting activity. It was a great stimulus, in the old days at Williams College, to be caught by interest, one way or the other, in the friendly rivalry between himself and Mark Hopkins. Bascom did not aspire to a system of the universe, even a moral universe, as Hopkins did, but his mind was more acute, and he was more of a reader, although neither would perhaps be called preëminently scholars. Both were rather intent on developing views of the moral, intellectual and spiritual universe which satisfied their own cravings and which would stimulate students. These volumes are perhaps on the whole more interesting to scholars than any other writings of the author, and it is a great satisfaction to have these maturest of his views of life put in permanent form.

The Jukes in 1915. By ARTHUR H. ESTABROOK. Washington, Carnegie Institution, 1916. 85 p.

Forty-two years ago Dugdale published his remarkable book on the Jukes, and Estabrook very properly begins his study of their descendants, more than a generation later, with a brief biography and eulogy of Dugdale. The latter studied 709 persons, 540 being of Juke blood, and 169 of "X" blood, who had married into the Juke family. Estabrook, with extraordinary patience, has traced 1,258 of the 2,094 people who have descended from the five sisters who one hundred and thirty years ago constituted the family. He finds that one-half of the Jukes were and are feeble-minded; the other half, perhaps normal mentally and economically, had become socially adequate or not according to circumstances. There are a few good citizens among the Jukes, but the cousin matings in defective germ plasm are clearly undesirable. There is, too, he finds, a hereditary factor in licentiousness, but the

Jukes generally need more social pressure to keep them straight in this respect. Pauperism indicates weakness. All the Juke criminals are feeble-minded. Removal from their original habitat benefits the stock. One in four of the Jukes is improved socially by care in children's institutions. Penal institutions have but little good influence. As to preventing the breeding of such families, there are practically only two solutions, permanent custodial care of the feeble-minded men and of all the feeble-minded women of child-bearing age, and sterilization. The first plan at the end of fifty years would practically end this defective germ plasm, but it would require the segregation of all the six hundred. Public opinion does not yet favor the other plan.

The mothercraft manual. By MARY L. READ. Boston, Little, Brown and Co., 1916. 440 p.

The author of this book has had a decade of experience as head of the Mothercraft School of New York, that makes her especially competent to write upon this subject. She has moreover traveled widely in this country and made the personal acquaintance of most of the best people and institutions that are interested in it, and as a result she has written a book which, in the judgment of the writer of this note, is the best of its kind, as, indeed, it ought to be as it is the last, and one which ought to be in the hands of every mother and everyone else interested in these subjects. In some of the more important chapters she describes the establishment of the home, finding the means for mothercraft, founding the family, growth and developing, preparation for the baby, its care, physical welfare of young children, their feeding, education of the little child, studying the individual child, a curriculum for babyhood and early childhood, play, games, the toy age, story telling, science, history, handwork, music, art, home nursing and first aid in the nursery, with an appendix containing various useful tables and diagrams and an excellent bibliography on each of the 21 chapters, filling 40 pages. The book contains 16 well-chosen cuts or plates on such topics as the School of Mothercraft, approved baby clothing and bassinet, cribs, nursery tables, holding the baby supporting the head and back, baby carriages, drugs, layettes, exercises for the baby, good and bad pictures, dangerous foods for children under six, wholesome sweets, laxatives, daily menu for children from two to six, regularity, good and bad toys, height and weight charts, etc.

Towards racial health. By NORAH H. MARCH. London, George Routledge and Sons, 1915. 326 p.

The author has been for many years a leading lecturer and teacher on this subject in England, and has brought together in this volume the results of her knowledge and experience. The main topics treated are, the physical, mental, and moral development of the child; care of children; supervision in its psychological aspect; nature study in the science of sex instruction; aids to understanding the biology of sex; ethical training; education for parenthood; with various suggestions for parents on how to answer children's questions and how to prepare them for pubertal changes; special hygiene for girls; physiology of human reproduction; care of animals; and notes on plant life, with a well-chosen bibliography of eight pages. Besides being a general survey and an excellent compend, this book really makes not a few important contributions to the subject of sex pedagogy.

How to live; rules for healthful living based on modern science. By Irving Fisher and Eugene Lyman Fisk. 7th ed. New York, Funk and Wagnalls Co., 1916. 345 p.

These chapters were authorized and prepared in collaboration with the Hygiene Reference Board of the Life Extension Institute, and the fact that the work has already reached the seventh edition shows us that it filled its own place. The personal interest of the book is greatly added to by the photographs of nearly eight members of the above Board. The work treats, in a very direct, practical way, first, of air, including housing, clothing, outdoor living, sleeping and deep breathing; second, food, its quantity, protein, whether hard, bulky, or uncooked, and the need of thorough mastication; third, poisons, constipation, posture, poisons from without, teeth and gums; fourth, activity versus sleep, need of serenity and poise; fifth, general hygiene, with fifteen rules, its unity, obstacles, possibilities, fields. There is a final section of supplementary notes on such topics as overweight and underweight, alcohol, tobacco, cold, etc., with a final chapter on eugenics. On the whole it is not saying too much to call this the most practical conspectus of personal hygiene so far before the public. On most of the topics valuable bibliographies are given.

The development of intelligence in children. By Alfred Binet and Th. Simon. Translated by Elizabeth S. Kite. Publications of the Training School at Vineland, N. J., Department of Research. No. 11. May, 1916. 336 p.

The intelligence of the feeble-minded. By Alfred Binet and Th. Simon. Translated by Elizabeth S. Kite. Publications of the Training School at Vineland, N. J., Department of Research. No. 12, June, 1916. 328 p.

The Research Department of the Training School at Vineland has done a great service in having Miss Kite translate the two significant books named above. Perhaps the volume on the development of intelligence in children is of chief interest to teachers and psychologists.

Art in education and life; a plea for the more systematic culture of the sense of beauty. By Henry Davies. Columbus, R. G. Adams and Co. (c. 1914). 334 p.

The topics here treated are, the nature and conditions of taste, the aesthetic resources of the schools, methods of developing taste, educational life of the drama, democracy in art, the warrant for reform. Perhaps the book is not entirely free from the tendency that besets work in this subject to generalize and even to sentimentalize, but it is full of fresh and stimulating suggestions, and the topic is certainly opportune, because aesthetics has not at all attained its proper place in our curricula. The author was for seven years a teacher of philosophy at Yale and from his acquaintance with young men drew the inference that something was wanting, and this work seems to supply this need.

Official diplomatic documents relating to the outbreak of the European War. Edited by Edmund von Mach. New York, Macmillan, 1916.

This imposing work contains photographic reproductions of official editions of the documents, blue, white and yellow books, etc., published by the governments of Austria, Hungary, Belgium, France,

Germany, Great Britain, Russia and Serbia, with introduction, summary, cross references and footnotes.

How to study effectively. By Guy Montrose Whipple. Bloomington, Ind., Public School Publishing Co. (c. 1916). 44 p.

This little book amplifies thirty-eight practical rules which are all admirable. Perhaps newest and best is rule 24, "Make the duration of your periods of study long enough to utilize warming up but not so long as to suffer from weakness or fatigue."

The gift of mind to spirit. By John Kulamer. Boston, Sherman, French and Co., 1916. 227 p.

The chief topics are the conflict between mysticism and realism, cycles and analogies, dreamland and the spirit world, evolutionary ethics, our metric system, democracy's need.

The students' Shakespeare. Macbeth. Memorial edition. Edited, with notes, by Frank Alanson Lombard. Kyoto, Japan, 1916. 310 p.

This work contains the text of the drama, with footnotes, and every other page is devoted to comments in finer type. It is suggestive and stimulating.

Seventeenth annual report of the State Board of Insanity of the Commonwealth of Massachusetts, for the year ending November 30, 1915. Boston, Wright and Potter Printing Co., 1916. 383 p.

This work contains very interesting reports, particularly one by Dr. Southard.

School organization and administration; a concrete study based on the Salt Lake City school survey. By Ellwood P. Cubberley. Yonkers-on-Hudson, World Book Co., 1916. 346 p.

This work is divided into four parts. The first treats organization and administration, more especially the problem, the school system, administration of the educational department, teaching staff, school census and attendance. Under II, The Work of the Schools, come the printed courses of study, instruction and supervision as seen, with desirable extensions, the efficiency of the instruction measured, and progress of children through the schools. In Section II, Buildings and Health, are treated the school plant, health supervision, physical education, playground activities and hygiene teaching; while Section IV is devoted to finance. The book contains many tables, diagrams and plans.

Some problems in city school administration. By George D. Strayer. Yonkers-on-Hudson, World Book Co., 1916. 234 p.

The main topics treated in this book are I, The Administrative Problem, including that of the school, teaching corps, school buildings and equipment, census, records, and reports, finance and accounts. Under II, The Instructional Problem, come chapters each on the classification and progress of pupils, quality of instruction, courses of study, achievements of pupils, supervision of instruction, adaptation of schools to community needs, summary, conclusions, and recommendations, with useful appendices, including a model register.

How to use your mind; a psychology of study. By Harry D. Kitson. Philadelphia, J. B. Lippincott Co., (c. 1916). 216 p.

This attractive book deals with the intellectual problems of the college freshman, note-taking, brain action during study, formation of

study-habits, first aids to memory, concentration of attention, how we reason, expression as an aid in learning, plateau of despond, mental second-wind, examinations, and finally, bodily conditions for effective study. The book can hardly be said to contain anything new. Its range does not go very far beyond that of ordinary common sense, and the bibliography on the last page is rather absurd. The writer evidently does not know the special literature connected with many of the topics he treats. For instance, Chapter X, Mental Second-Wind, is a topic on which there is a vast and very voluminous literature, which anybody writing on this subject ought to know something about, and if he does so he conceals it.

New Possibilities in education. Annals of the American Academy of Political and Social Science, Vol. LXVII, September, 1916, Whole No. 156.

These 64 essays by different writers are divided into various groups. The first is entitled Points of Emphasis in the Curriculum and Organization of the Modern School; under this fall Training for Social and Moral Behavior, for Vocational Usefulness, for Health and Physical Well-Being, for the Right Use of Leisure. Part II is on Continuing Readjustment of the Curriculum and Organization of the Modern School, more specifically, Through Coöperation of Community Centers, of Home and School Associations, the School-Home Program of Work and Study. Part III is on The Extension of Opportunities for Adult Education, under which the essays are grouped under the following sub-heads: Through Continuation Schools and Extension Courses, Through Large-Scale Demonstration, Through Library Extension, Through Miscellaneous Official Agencies. Then follows the Book Department, with literature.

Form and functions of American government. By THOMAS HARRISON REED. Yonkers-on-Hudson, World Book Co., 1916. 549 p.

This book is the result of nine years of experience in teaching government and a lifelong interest in politics. It is intended primarily for high school pupils who go no farther on the road of formal education, and deals with principles of governmental organization and activity in a way to be a basis for a thorough high-school course in preparation for citizenship. The main captions are: The Background of American Government, Parties and Elections, State, Local and National Government, The Functions of Government. The book is given added interest by a number of photographs illustrating very many pertinent topics.

The supervision of arithmetic. By W. A. JESSUP and L. D. COFFMAN. New York, Macmillan, 1916. 225 p.

This book deals with the subject-matter of arithmetic, grade distribution of the different arithmetical topics, the allotment, dominance of methods, sequence of multiplication tables, oral work, drill, judging textbooks, algebra and geometry in grades, problems related to business, tests and results as shown by special investigation.

In the light of the spirit. By CHRISTIAN D. LARSON. New York, Thomas Y. Crowell Co. (c. 1916). 194 p.

This is another of the now many books of this author upon subjects akin to mind cure, psychotherapy, etc. It is difficult to gather from the titles much of any indication as to the real contents of the chapters. The whole thing is evidently an interesting *mélange,* made of many

elements which suggest at least Christian Science and various other views that give an immense predominance of soul over matter.

Converging paths. By E. T. CAMPAGNAC. Cambridge, University Press, 1916. 113 p.

This work consists of five chapters: 1. Religious Instruction, 2. Commercial Education, 3. Standards in Taste and Morals, 4. Notes on the Significance of Rhythm in Plato's Scheme of Education, 5. Oratory and Virtue.

The expectant mother. By SAMUEL WYLLIS BANDLER. Philadelphia, W. B. Saunders Co., 1916. 213 p.

This work deals in a rather detailed way with the whole story of pregnancy at its various stages, involving regimen, diet, etc.; then treats of the various stages of labor, after-pains, post-partum care, twilight sleep, Cesarean operations, hemorrhages, eugenics, ending with puberty. The work contains a few illustrative cuts or diagrams.

A handbook for Latin clubs. By SUSAN PAXSON. Boston, D. C. Heath and Co. (c. 1916). 148 p.

This work seems to be divided into two parts; the first is entirely bibliographical, under many different heads, such as modern Rome, Roman gods, Roman banquet, letters, Horace, Cicero, etc., while the second part contains selections, mostly in English, that may be used, and finally songs that may be used for the programs.

A handbook of American private schools. (An annual publication). Boston, Porter E. Sargent (c. 1916). 604 p.

This is a convenient list showing the distribution of schools and summer camps, with comparative tables, educational directory, etc. It contains a great deal of valuable matter, arranged in convenient form, together with rather interesting announcements from many private schools.

Introduction to American history. By JAMES ALBERT WOODBURN and THOMAS FRANCIS MORAN. New York, Longmans, Green, (c. 1916). 308 p.

These authors assume that it is not possible for a student to take up the study of American history intelligently without knowing something of the European background, and it is this background which this book attempts to supply, with the aid of twenty-four illustrations.

Drake of troop one. By ISABEL HORNIBROOK. Boston, Little, Brown, 1916. 321 p.

This is another interesting novel by this now rather fertile author. It is a lively story, well written, in good, clear print, and contains four illustrations.

National Parks folio. Published by the Department of the Interior, Washington, D. C.

This gives many photographic reproductions of our national parks, and constitutes an amazingly interesting picture-book.

Aus Nah und Fern. Vol. VIII, No. 1. October, 1916. Chicago, F. W. Parker School Press.

This is an attractive little magazine for students of German.

Teachers College, Columbia University, Contributions to Education:—

No. 75, *Adjustment of school organization to various population groups,* by Robert Alexander Fyfe McDonald. 1915. 145 p.

No. 76, *The relations of general intelligence to certain mental and physical traits,* by Cyrus D. Mead. 1916. 117 p.

No. 77, *Completion-test language scales,* by Marion Rex Trabue. 1916. 118 p.

No. 78, *Ventilation in relation to mental work,* by E. L. Thorndike, W. A. McCall and J. C. Chapman. 1916. 83 p.

No. 80, *Measurements of some achievements in arithmetic,* by Clifford Woody. 1916. 63 p.

The golden book of favorite songs. Compiled and edited by N. H. Aitch. Chicago, Hall & McGreary, 1915. 128 p.

Yiddish-English lessons. By I. Edwin Goldwasser and Joseph Jablonower. Boston, D. C. Heath & Company, 1916. 248 p.

Boswell's Life of Johnson. By Max J. Herzberg. Boston, Heath & Co., 1916. 280 p.

The school and the immigrant. By Herbert Adolphus Miller. Cleveland, Cleveland Foundation Survey, 1916. 102 p.

The teaching staff. By Walter A. Jessup. Cleveland, Cleveland Foundation Survey, 1916. 114 p.

The metal trades. By R. R. Lutz. Cleveland, Cleveland Foundation Survey, 1916. 114 p.

Seventy-ninth Annual Report of the Board of Education. Boston, Wright & Potter, 1916. 361 p.

The thirty-fifth and thirty-sixth reports of the International Institute of China. By Rev. Gilbert Reid. Shanghai, Methodist Pub. House, 1915. 62 p.

Report of the Board of Education of St. Louis, Mo. 1915. 698 p.

Maine School Report. Waterville, Maine, Sentinel Publishing Co., 1916. 291 p.

La "scala metrica dell'intelligenza" di Binet e Simon; studiata nelle scuole comunali elementari di Milano. By Zaccaria Treves and F. Umberto Saffiotti. Milano, G. Civelli, 1911. 67 p.

L'opera di Zaccaria Treves e la psicologia sperimentale. By F. Umberto Saffiotti. Milano, 1912. 28 p.

La misura dell'intelligenza nei fanciulli. By F. Umberto Saffiotti. Roma, Società Romana di Antropologia, Via del Collegio Romano, 26, 1916. 286 p.

Contributo allo studio dei rapporti tra l'intelligenza e i fattori biologico-sociali nella scuola. By F. Umberto Saffiotti. (Reprinted from Rivista di Antropologia, Vol. XVIII, Fasc. 1-2.) 1913. 34 p.

Forme e contenuto dell'associazione spontanea nei fanciulli. By F. Umberto Saffiotti (Reprinted from Rivista di Antropologia, Vol. XIX, Fasc. 1-2.) 1914. 14 p.

Anuário da Casa Pia de Lisboa. Ano Económico de 1914-15. Lisboa, R. Do Mundo, 139. Tip. Casa Portugueza, 1915. 552 p.

Tentative syllabus of the physical training program. University of the State of New York, State Department of Education. 1916. 226 p.

New York State. Eleventh annual report of the Education Department, for the school year 1913-14. 1163 p.

A laboratory and class-room guide to qualitative chemical analysis. By GEORGE F. WHITE. New York, D. Van Nostrand Co., 1916. 171 p.

Plane and solid geometry. By WILLIAM BETZ and HARRISON E. WEBB. (With the editorial coöperation of Percy F. Smith.) Boston, Ginn, (c. 1916). 507 p.

Algebra review. By CHARLES H. SAMPSON. Yonkers-on-Hudson, World Book Co., 1916. 41 p.

Scientific method in schools; a suggestion. By W. H. S. JONES. London, Cambridge University Press, 1916. 36 p.

Reorganizing a county system of rural schools; report of a study of the schools of San Mateo County, California. By J. HAROLD WILLIAMS. Washington, Gov't Printing Office, 1916. (Bureau of Education Bull., 1916, no. 16.) 50 p.

Journal of Heredity. August and September, 1916. Washington, D. C., American Genetic Association.

A practical Spanish grammar. By VENTURA FUENTES and VICTOR E. FRANÇOIS. New York, Macmillan, 1916. 313 p.

United States life tables, 1910. Prepared under the supervision of Prof. James W. Glover of the University of Michigan. Bureau of the Census. Washington, Gov't Printing Office, 1916. 65 p.

Bureau of American Ethnology. Twenty-ninth annual report to the Secretary of the Smithsonian Institution, 1907-1908. Washington, Gov't Printing Office, 1916. 636 p.

Bureau of American Ethnology. Thirtieth annual report to the Secretary of the Smithsonian Institution, 1908-09. Washington, Gov't Printing Office, 1915. 453 p.

Physical anthropology of the Lenape or Delawares, and of the eastern Indians in general. By ALEŠ HRDLIČKA. (Smithsonian Institution, Bureau of American Ethnology, Bulletin 62.) Washington, Gov't Printing Office, 1916. 129 p.

Centennial celebration of the United States Coast and Geodetic Survey. April, 1916. Washington, Government Printing Office, 1916. 196 p.

The policy of national instinct. By M. TAKE JONESCO. London, Sir Joseph Couston and Sons, 1916. 108 p.

43.—Nationaler Deutschamerikanischer Lehrertag, 28. Juni-1. Juli, 1916. Milwaukee, Wis. 20 p.

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EDITED BY

G. STANLEY HALL, Ph. D., LL. D.
President of Clark University, and Professor of Psychology and Education

WITH THE ASSISTANCE OF

WILLIAM H. BURNHAM, PH. D.
Professor of Pedagogy, Clark University

AND WITH THE CO-OPERATION OF

F. W. ATKINSON, President Polytechnic Institute of Brooklyn; T. M. BALLIET, Dean of the School of Pedagogy, New York University; Professor EARL BARNES, Philadelphia; Professor W. S. MONROE, State Normal School, Montclair, N. J.; E. H. RUSSELL, Late Principal State Normal School, Worcester, Mass.

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